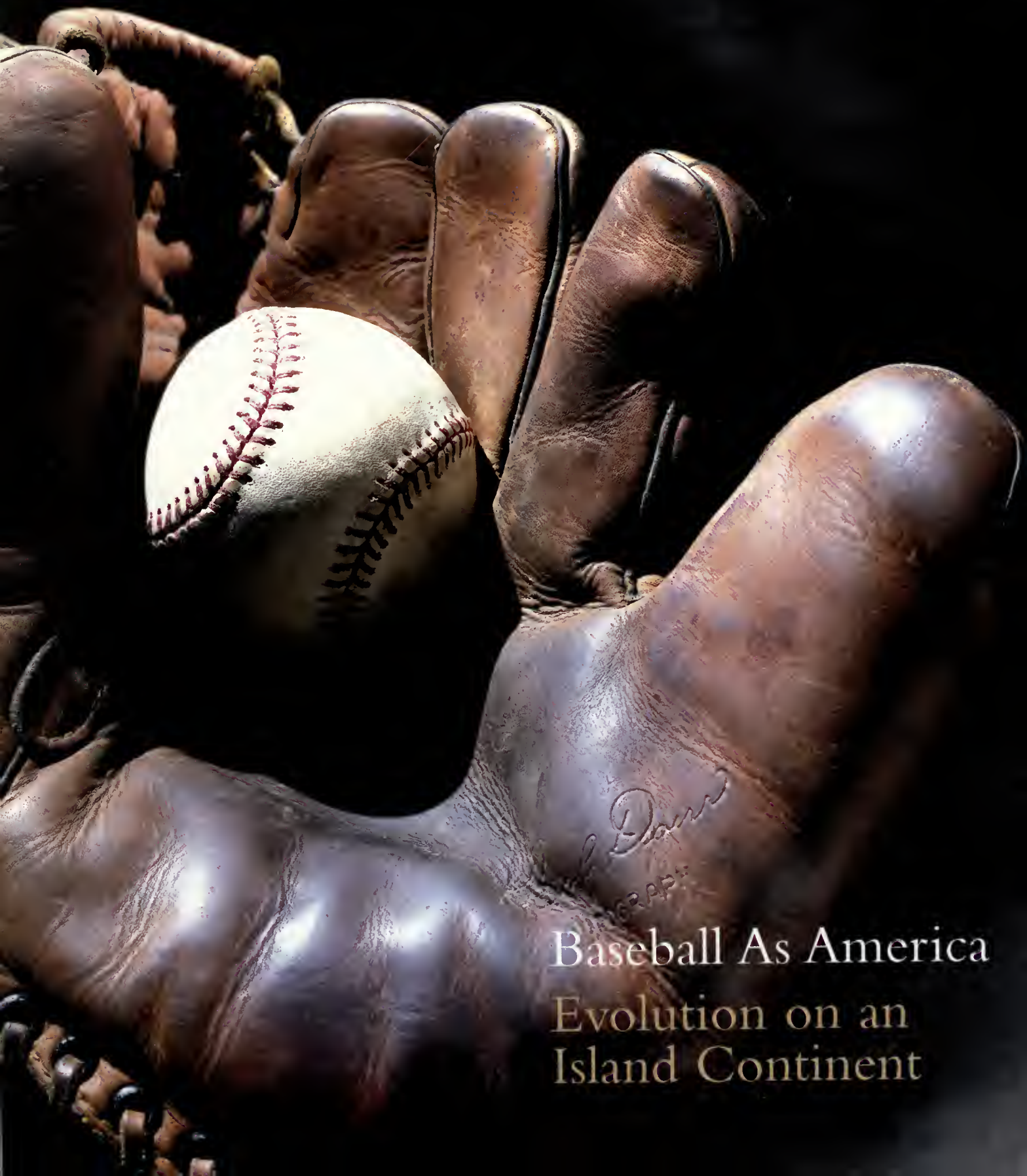


INTHEFIELD

Winter
2002-2003

The Field Museum's Member Publication



Baseball As America
Evolution on an
Island Continent

A Rather Unusual Business



JOHN WEINSTEIN / GNB88119.6

For most of us, this past year was anything but business as usual. The tragedy of Sept. 11 sent after-shocks that still ripple around the world, as individuals and institutions alike are faced with an array of challenges. Fortunately, The Field Museum was able to continue operating successfully, thanks to your longstanding financial support. In all areas, we strove to make 2002 business as usual.

We are, however, in a rather unusual business. Take a look at just a few achievements of this vast and influential institution during the past 12 months:

Science

- We broke ground for the Collections Resource Center, a new facility for the storage, research and conservation of much of our anthropology and zoology collections.
- We pushed the origin of primates back 20 million years to a time when dinosaurs still roamed the Earth.
- We debuted two dinosaur discoveries, *Sinovenator changii* and *Liaoceratops yanzigouensis*.
- We formally began working with the World Wildlife Fund and Bhutanese scientists to save this environmental jewel nestled in the Himalayas.

Field Museum scientists Margaret Thayer and Jim Louderman collect specimens at the Calumet BioBlitz.



JOHN WEINSTEIN / GNB0491.129D

- We contributed scientific results and recommendations for a new reserve in Ecuador, which the government placed in official custody of the indigenous Cofán.
- We brought together everyone from world-class scientists to curious kids for the Calumet BioBlitz, a 24-hour plunge to document plants and animals in order to build community-based conservation initiatives.

Exhibitions

- We opened *Chocolate* to more than 300,000 visitors so far. The exhibition will tour to 10 cities, including Los Angeles, New York and Honolulu.
- We combined our strengths with the American Museum of Natural History in New York to create the gorgeous exhibition *Pearls*.

Education and outreach

- We expanded Field Ambassadors to nearly 190 participants—a diverse, energetic group of educators eager to bring Field Museum resources into their classrooms.
- With expeditions to Mexico and Wyoming, we launched *expeditions@fieldmuseum*, a program in which participants receive reports from our scientists in the field.
- We partnered with National Geographic to present, among others, Zahi Hawass, Egypt's

director of pyramids, and Michael Fay, who trekked across Africa on foot.

- We introduced Harlow, an online catalog that brings 40,000 of our library's books to the public.

With all these accomplishments, however, tourism and contributions are in decline, and admission revenues, while important, only cover about 15 percent of the Museum's needs. We rely on donors to maintain the ongoing health of this institution. Without your vital support, none of this productive activity would be possible.

As you plan your year-end contributions, please consider a gift to The Field Museum. We have enclosed a gift envelope for your convenience. We know you care about what we do, and we need your continued support to keep our scientific and educational initiatives alive. With everyone's commitment, we will remain one of the world's great natural history museums.

John W. McCarter, Jr.

John W. McCarter, Jr.
President & CEO

What do you think about In the Field?

For general membership inquiries, including address changes, call 312.665.7700. For questions about the magazine *In the Field*, call 312.665.7115, email acranch@fmnh.org, or write Amy E. Cranch, Editor, The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496.

INTHEFIELD INSIDE

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Cover: See the stuff of legends and celebrate a nation's spirit in *Baseball As America*, running Feb. 8 through July 20, 2003. Photo by Mark Widholm/GN90448.Ad.

The Field Museum salutes the people of Chicago for their long-standing, generous support of the Museum through the Chicago Park District.

The **Field**
Museum

1400 South Lake Shore Drive
Chicago, IL 60605-2496
312.922.9410
www.fieldmuseum.org



NATIONAL BASEBALL HALL OF FAME AND MUSEUM



JOHN BATES



ANDRÉ WYSS

2

Baseball As America delves into this sport's history, cultural significance and ability to influence a nation.

Top: American League players at All-Star Game.

4

Despite war and a lack of resources, Congolese and FM scientists are forging ahead in biodiversity studies and conservation.

Middle: Muzumani Risasi of CRH-Uvira identifies fish from Lake Kivu.

16

Paleontologist John Flynn spent a year in the Andes studying mammal diversity over the past 65 million years.

Bottom: Synthesizing the day's findings at the campsite.

Conversion conundrum: Nearly all of the metric-to-English conversions were incorrect in the September–November article *Turning Points in the Human Experience*. The correct conversions are 230 meters equals 750 feet, 8,000 square meters equals 86,112 square feet and 650 square kilometers equals 250 square miles. On page 5, “246,000 square meters” should have read “246 hectares,” which equals 608 acres.

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17. I certify that all information furnished is true and complete. /s/ Amy E. Cranch, Editor, <i>In the Field</i>	E. Free distribution outside the mail	3,815	2,000
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Baseball Exhibition Reflects America's Triumphs—and Struggles

Tiffany Plate, Writer, Exhibitions

All photos courtesy National Baseball Hall of Fame and Museum

Come for Honus Wagner's 1909 card. Come for Babe Ruth's bat. Come for more than 500 baseball artifacts from The National Baseball Hall of Fame and Museum in their first-ever tour of the country. But don't forget about why these things are important.

Members of the All-American Girls Professional League stand at attention during the National Anthem.

Baseball As America, running at The Field Museum from Feb. 8 to July 20, 2003, delves into our national pastime with a look at baseball's history, cultural significance and ability to influence a nation. The artifacts tell a vital story, and Chicago, as one of our country's great sports cities, understands that best of all. To some, being a Cubs or White Sox fan means more than knowing which players you like and who has the better record. It's an identity, a legend, a business venture ... the center of our city's spirit. So how did it come to be that a group of players, throwing around a ball and swinging a bat, signifies so much to us?

Our national spirit

For one thing, baseball is rife with ritual. We sing *Take Me Out to the Ballgame*, wave our flags and cheer for our heroes. "Sports events, in cultures old and new, are highly ritualized activities," said Alaka Wali, John Nuveen curator and director of the Museum's Center for Cultural Understanding and Change. "Baseball, because of the pace of the game, has more room for ritual than most." Its ceremony is deeply rooted in patriotism, which makes the fans feel like a team, too.

So eager were Americans to make baseball a national symbol that they created its founding myth a century ago. In 1905, sporting goods mogul and former baseball star A.G. Spalding assembled a special commission to investigate its origins. Under his influence, the Mills Commission, as it was later known, officially declared—on scant evidence, and despite apparent contradictions—that Abner Doubleday invented the game in Cooperstown, New York, in 1839.



One of the most highly prized baseball cards, the famous Honus Wagner T206 card of 1909 sold at an auction two years ago for nearly \$1.3 million.

"The Doubleday story was part of developing a unique American identity," said exhibition content advisor Bill Savage, who is an English lecturer at Northwestern University and has taught classes on baseball at the Newberry Library. The game, it seems, actually spawned from English bat-and-ball games that have been played for centuries.

Ideals and injustice

For 150 years we have called baseball our national pastime. It has reflected our country's growth, and its shortcomings. Following the Civil War, a few minor league professional teams kept African-American players on their rosters until segregation became national law, forcing the creation of Negro leagues. Jackie Robinson, while not the first African-American great, was the first African-American in the modern major

leagues, joining the Brooklyn Dodgers in 1947—an important departure from a longstanding tradition of discrimination. Negro league teams such as the Pittsburgh Crawfords and the Homestead Grays quickly became a source of community pride and a significant African-American owned industry.

From the pristine fields of Ivy League schools to the alleyways of Venezuela, baseball can be played anywhere by anyone. It has transcended boundaries of race and class, giving rise to further development in urban centers, and requires only an empty field, a ball, a bat and a few energetic players. More recently, professional leagues have developed in other countries such as Japan, Cuba and Korea, forcing Americans to resituate their love of the game in an international arena. We have adopted

the best players from other countries onto our teams and into our hearts. As long as it's the same baseball we know and love, it's American.

Yet race and class are not the only factors shaping the profile of our baseball heroes. Great women's leagues sprouted during World War II because of a shortage of male players. Skilled women stepped in where their male counterparts left off—only with a few more restrictions on their performance. *Baseball As America* includes a deportment manual from the All-American Girls Professional Baseball League, laying down the laws of “ladylike” behavior, on and off the field, that reminds us just how far we've come in women's athletics. The exhibition also highlights women's involvement in major league baseball, including Helene Britton, who inherited the St. Louis Cardinals in 1911, and Joan Payson, founder of the New York Mets.

A home game: Chicagoans share a common culture

Even if baseball isn't one of your interests, you'd be surprised to find how much it has influenced our culture. You've probably worn a baseball cap or used the phrase “in the ballpark” when estimating cost. In fact, baseball's influence on American vernacular is overwhelming: Ideas like “covering our bases” and “home field advantage” are so common that we don't think about their origins.

It's hard to get around Chicago in the summer without noticing the scent of hot dogs on Clark Street, el trains full of fans wearing their team's

colors or a fireworks display over Comiskey Park. As commonplace as it becomes, we still feel electricity in the air from thousands of people excited to watch their favorite team. Even being near Wrigley Field or Comiskey Park on non-game days lends itself to a sense of magic and excitement.

To highlight our hometown heroes, the exhibition shows off some of Chicago's greatest players and moments, including:

- Sammy Sosa's 1998 #62 home run ball
- Ryne Sandberg's glove
- “Shoeless” Joe Jackson's shoes and his famous Black Betsy bat
- Harry Caray's eyeglasses
- Bricks from old Comiskey Park
- A seat from Wrigley Field

And much more. So come for the priceless objects. Come to learn about a significant piece of American history. And come for the excitement that you're sure to feel in *Baseball As America*. As Comiskey Park hosts the 2003 All-Star Game and the Cubs and White Sox are on track for winning seasons, the air will certainly sparkle. **ITF**

This exhibition was organized by The National Baseball Hall of Fame and Museum, Cooperstown, New York.

The national tour of *Baseball As America* is sponsored by Ernst & Young.



In Our Own Words: What Baseball Means to Us

“Baseball to me is a matter of family history. Lefty Grove, nicknamed for his left-handed pitch, was my father's cousin once removed. Lefty was inducted into the Hall of Fame in 1947 and was honored as the greatest left-handed pitcher of all time in 1969. He pitched for the Philadelphia Athletics and the Boston Red Sox. When my father was 14, he attended a game in Detroit where Lefty was pitching and invited him home for Sunday dinner. That became a tradition anytime he played in Detroit. My father recalled that he was “temperamental and a perfectionist,” a trait for which Lefty became known. Jim Kaplan memorialized Lefty and my father in his book *Lefty Grove: American Original*.”

—Lori Grove, *Illustrator, Department of Geology*

“Baseball is a culture. I love the aura of being at the game and watching them play. The ambience is wonderful. Sammy is the icon.” —Maxine Baratz, *Schaumburg*

“Baseball means my family more than anything. My grandfather was from the south side and raised my dad as a Sox fan, who then turned my brother into one. My brother played baseball all his life, so I spent most of my summers as a kid at his games. I like to watch baseball because it's complex enough that it's interesting and fun to watch, but not so complicated that you have to watch every second.” —Laura Bork, *Chicago*

Science Survives in Spite of Congo's Conflicts

Amy E. Cranch, Editor

Editor's note: John Bates, who heads the project featured in this article, became chairman of the zoology department in October. With the Museum since 1995, Bates studies the evolution and conservation of tropical birds. He succeeds Rüdiger Bieler, who will return to researching marine snails and bivalves.

Rwandan refugees pouring into the country like salt through fingers ... an ensuing civil war rife with human rights abuses ... attempts to establish peace hanging in fragile limbo. While this is what most of us envision in the Democratic Republic of Congo, abundant beauty and diversity are concealed within its forests. Here, nature can't wait for humans to sort out their issues, and scientists are speedily trying to discover and save what's there before human activity takes too great a toll.



Ben Marks (back left) and Charles Kahindo (back right) teach participants about birds at CRSN-Lwiro.

Despite severe constraints on activities and almost no government support—financial, material, regulatory or otherwise—Congoese scientists and their international colleagues forge on. With funding from the John D. and Catherine T. MacArthur Foundation, The Field Museum, the Congoese Institute for the Conservation of Nature (ICCN) and two research stations in the eastern Congo—the Center for Natural Science Research (CRSN-Lwiro) and the Center for Hydrobiological Research (CRH-Uvira)—are hoping to reacquire researchers and others with this special, yet troubled part of the world.

The four-year initiative was born when nine participants in a Field Museum collaborative training program at Makerere University in Kampala, Uganda, asked their mentors to consider establishing a similar program in the Congo. It includes basic training in documenting and monitoring biodiversity; implementing studies in geographic variation and genetic diversity among birds and mammals; and developing educational materials

for local communities, university students and the station staff.

As part of the program, the Museum hosted three Congoese this past fall for seven weeks—an ichthyologist from CRH-Uvira and an ethnobotanist and mammalogist from CRSN-Lwiro. They trained in collections management and collections-based research to take back home and revitalize their research stations. They also visited other Chicago-area institutions and natural areas to learn about education programs and natural area management.

“An important way the Congoese can conserve their country is by building up the capacity of the scientific community,” said John Bates, who leads The Field Museum’s team. “A goal is to bring life to the stations and get them reconnected to the outside world, especially other scientists. Field Museum staff and resources are ideally suited to help with that.”

Built during colonial times, the stations have different but overlapping focuses. CRSN-Lwiro oversees the entire Albertine Rift region and adjacent Congo Basin, while CRH-Uvira is primarily interested in Lake Tanganyika, one of the world’s richest aquatic ecosystems. ICCN is charged with protecting parks, including Kahuzi-Biega National Park, which lies just west of the CRSN-Lwiro station, and the Itombwe Massif.

These regions harbor high diversity, but how connected they are to each other and the rest of the Albertine Rift region is not clearly understood. The massif, for example, is home to many endemic species, such as the Congo Bay Owl and Itombwe Nightjar, yet it is unprotected. And while there has been extensive research on gorillas and chimps, little has been studied about the rest of the rift’s diversity, leaving its position as a global priority for conservation in question. Our project will provide a more complete picture of the region’s genetic diversity and evolutionary history, boosting our ability to design solid, sustainable conservation plans.

JOHN BATES



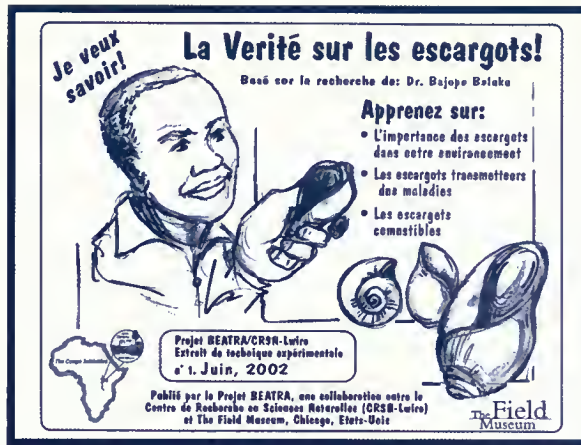
JOHN BATES

Despite the difficult years, “The potential for recovery is phenomenal,” said Bates. “Our colleagues at the universities and stations just want to get on with it.”

The Congolese scientists themselves are perhaps the initiative’s greatest asset. Their devotion is impressive, as they have worked years for free and with little support of any kind. Charles Kahindo, for example, was a teacher. Speaking no English and having almost no scientific experience, he joined the Ugandan program and used that experience to obtain a master’s degree from Makerere University. Today, with aid from the MacArthur grant, Kahindo is playing a crucial role in helping the project’s participants navigate the logistical challenges of working in a war-torn country. He’s also pursuing a doctoral degree on the genetic diversity of Albertine Rift warblers. His reason ... because it matters.

Conservation can become void if scientists do not educate local communities about its relevance or utilize their strengths to implement plans. Dan Brinkmeier, of the Museum’s Environmental and Conservation Programs, has worked with the stations to target schools and community groups through mass media, materials, presentations and invitations to visit the stations. They are also working with university professors to increase learning opportunities for undergraduate students. The materials bring the value of science to local people, covering such topics as why we collect, how we can use collections for public education and how healthy ecosystems can improve life for the human populations in and around them.

One booklet that Brinkmeier prepared with the science director from CRSN-Lwiro addresses the role that snails play in the environment and their value as a food source. But it also explains how snails can transmit bilharzia, a disease caused by parasitic worms that primarily affects the kidney and liver. Such educational efforts translate into direct action at the local level and increase the significance of the stations among the local people.



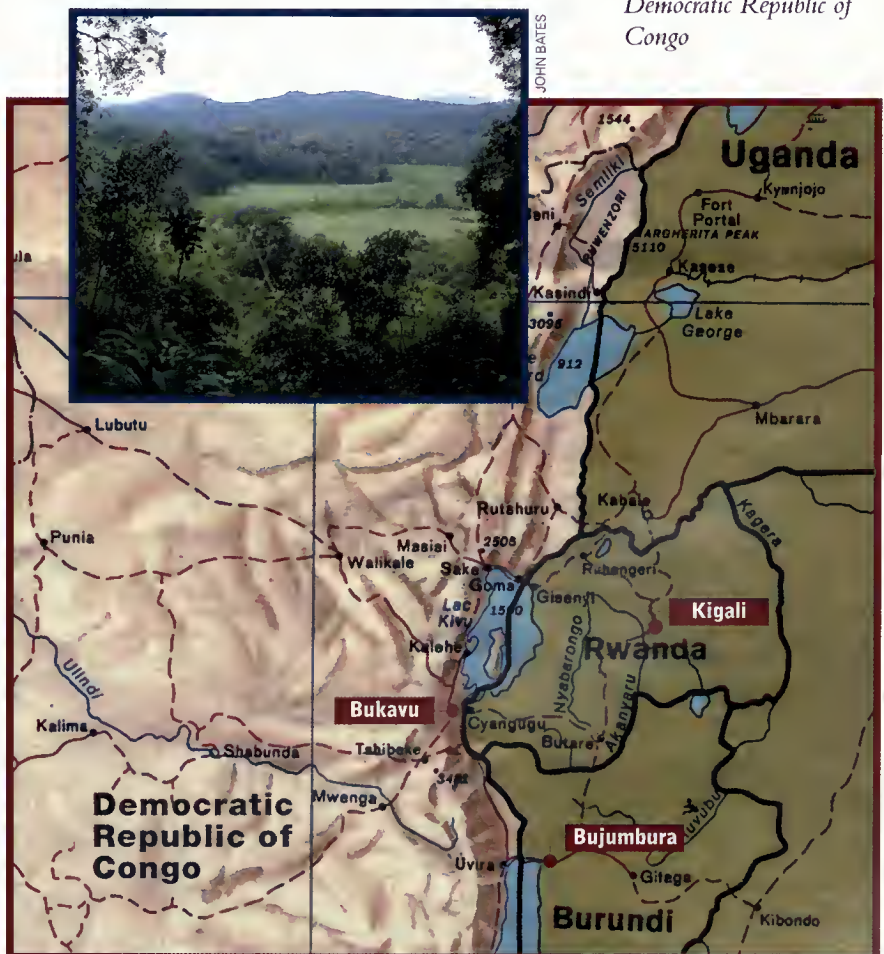
DAN BRINKMEIER

Left: Long-tailed Mountain Cuckoo, *Cerococcyx montanus*, a species endemic to the Albertine Rift and Eastern Arc Mountains of Tanzania.

Right: An educational booklet in French about the interactions between humans and local disease-carrying snails.

Like our Congolese colleagues, we hold tight to the hope that peace is imminent. Biodiversity issues, however, cannot wait for that resolution, so improving and sustaining science remains steadfast. “In many ways, we’re training them so that they ultimately don’t need us,” said Bates. “But the flip side is that we’re all incredible resources to each other. The potential to create lifelong partnerships is great.” **ITF**

Visit www.fieldmuseum.org/congo for information about research and training in the eastern DRC.



JOHN BATES

Bottom left: Large swamps such as Musisi are common at high elevations of the Albertine Rift and harbor a number of endemic species.

Bottom right: The eastern Democratic Republic of Congo

Live...from National Geographic: An Interview with Chris Johns

Following last year's success, The Field Museum and National Geographic are once again presenting *Live...from National Geographic*. (See the calendar for the series' full schedule.) Below are excerpts from an interview with Chris Johns, the first speaker. A veteran staff photographer and senior editor of illustrations, Johns has focused his lens on Africa for more than 13 years. He will be signing his new book, *Wild at Heart: Man and Beast in Southern Africa*, on Feb. 18.

ITF: Tell us about your upcoming book.

CJ: It's a collaboration with Peter Godwin. Africa has always been a fascinating, thrilling place to work. I'm especially intrigued with South Africa. I felt it was very important, after Nelson Mandela was elected, to acquaint our readers not just with its politics, but also its physical landscape and progressive policies. I did a few stories for the magazine and then started working on two of my favorite species—African wild dogs and cheetahs. I thought there might be a book there, but wasn't sure what to hang it on thematically. Then Peter and I met with Mandela, who, in a sense, articulated the book ... balancing the needs of humans and wildlife, and that if we're going to talk about human rights, we need to think about how we treat the environment as well.

ITF: How do wild dogs and cheetahs indicate how humans are treating the ecosystem?

CJ: They both require a large range. As habitats shrink, ranges shrink, and cheetahs and wild dogs are dependent upon big ranges for hunting and escaping from other predators. If there's a drastic decline in either population, that's telling us that they're not getting enough range, that the balance in the ecosystem is upset.

You've also got humans and wildlife colliding. As more areas are turned into cattle farms, goat farms, game farms ... a wild dog or cheetah is going to look at those animals as easy prey. That's natural, but the farmers might say they've just spent a great deal of money to breed and sell their game and the dogs and cheetahs are killing them. What has started to loom on the horizon are more management plans about how we coexist with animals and educate people.

ITF: Working at a natural history museum, I understand the call for balancing the needs of humans and wildlife. It's my challenge as an editor to educate people about biodiversity and conservation and why they should care.

CJ: One of the most important things to realize is the interconnectedness of us all, and there are incredibly important parts of this puzzle that we don't understand yet. One of my dearest friends, Dr. John McNutt, has been studying wild dogs in the Okavango Delta for 14 years—widely believed to be the world's expert. He's constantly trying to raise funds. It troubles me that there are so many good, dedicated, passionate people working with endangered species who have to struggle so much to even carry on a study group.

As a society, we have to think about our priorities, what's really important to us. More shopping centers and sports utility vehicles? I think it would behoove us Americans to look at other cultures and ecosystems and then look at our own behavior. It's all interconnected, a state of mind. And if our state of mind is consumption, we will pay a price for that down the road.

ITF: What do you plan to do with the book?

CJ: Its intention is to celebrate the beauty of South Africa, its diverse cultures and this deep, long connection human beings have with the wild. That's why it's called *Wild at Heart*. Peter and I think that most people are still basically wild at heart, and we celebrate that. Our aim is to dispel some myths about Africa and offer not just problems but rays of hope in the human-to-animal interface. **ITF**



CHRIS JOHNS

YOURGUIDE TOTHEFIELD

Calendar of Events for Winter 2002–2003 December–February

Inside: Exhibits Festivals Family Programs Adult Programs



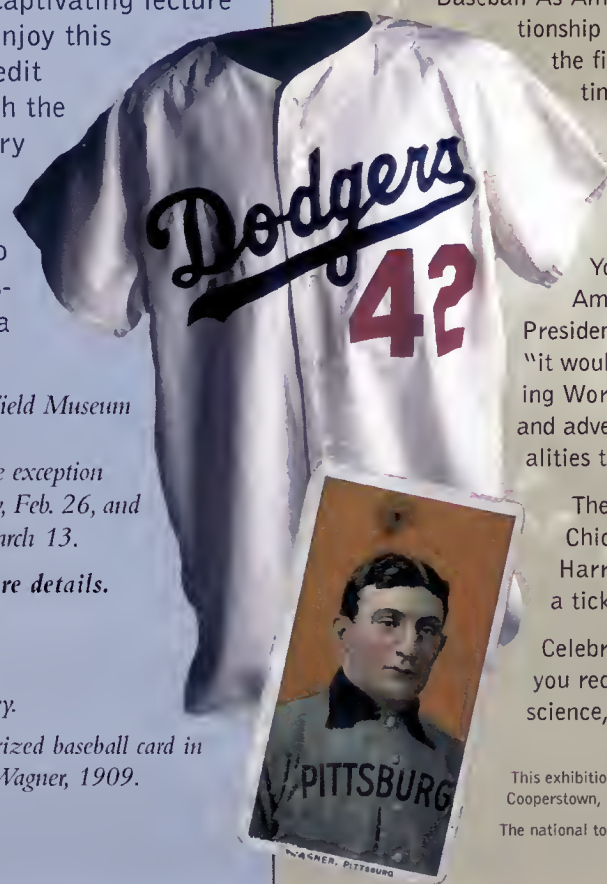
Beyond the Diamond: Baseball and American Culture

Lecture Series

Explore baseball's history, legends, science and impact on American culture through this captivating lecture series. You can also enjoy this series as part of a credit course offered through the Humanities Laboratory at the University of Illinois at Chicago. The credit course also includes readings, discussion sessions and a writing project.

Lectures will occur at The Field Museum at 6pm on Tuesdays from Feb. 18–April 22, with the exception of one lecture on Wednesday, Feb. 26, and one lecture on Thursday, March 13.

See page 9 inside for more details.



Top: Jackie Robinson's jersey.

Bottom: The most highly prized baseball card in the world, a T206 Honus Wagner, 1909.

New Exhibition— Baseball As America

Feb. 8–July 20, 2003

Shoeless Joe's shoes. Babe's bat. Jackie's jersey.

See the stuff of legends and discover how baseball embodies the American spirit.

Baseball As America is the first major exhibition to examine the relationship between baseball and our nation's culture. It is also the first time that cherished treasures from our national pastime have left The National Baseball Hall of Fame and Museum in Cooperstown, New York. With more than 500 of the Hall of Fame's most precious artifacts, this exhibition shows how baseball mirrors our nation's values, struggles, triumphs and aspirations.

You'll see artifacts from the Negro Leagues and the All-American Girls Professional Baseball League, as well as President Roosevelt's famous "Green Light" letter stating that "it would be best for the country to keep baseball going" during World War II. Balls, gloves, bats, uniforms, baseball cards and advertisements bring baseball's vibrant stories and personalities to life.

The exhibition also includes items of special interest to Chicago fans—including Sammy Sosa's record-setting bat, Harry Caray's signature glasses, Ryne Sandberg's glove and a ticket window and bricks from the original Comiskey Park.

Celebrate good times, great feats and legendary heroes when you rediscover this beloved sport through the lenses of history, science, economics and popular culture.

This exhibition was organized by The National Baseball Hall of Fame and Museum, Cooperstown, New York.

The national tour of Baseball As America is sponsored by Ernst & Young.

COURTESY NATIONAL BASEBALL HALL OF FAME AND MUSEUM

The Field
Museum

General Museum Information: 312.922.9410

Family and Adult Program Tickets and Information: 312.665.7400

See these exciting exhibitions before they close!

Final Days

Chocolate— The Exhibition

Through Dec. 31, 2002

Did you know that Americans eat an average of 12 pounds of chocolate per person per year? Or that the cacao seeds used to make chocolate taste bitter, not sweet?

Immerse yourself in the history of a luscious treat in *Chocolate*. Take a sweet journey for all ages—from the rainforest to the ancient civilization of the Maya, from 16th-century Europe to a modern-day candy factory. This exhibition will engage your senses and reveal facets of chocolate that you've never thought about before.

Chocolate is a specially ticketed exhibition. All labels are in English and Spanish.

Chocolate and its national tour were developed by The Field Museum, Chicago.

This project was supported, in part, by the National Science Foundation.

Education programs supported by The Chicago Community Trust.



Final Days

Pearls

Through Jan. 5, 2003

Dive into the mysterious realm of the pearl—from its watery origins to its history as a treasured symbol of purity, wealth and glamour. Marvel at the dazzling variety of these lustrous gems and trace their cultivation by humans. With more than 600 objects and nearly half a million pearls, this gorgeous exhibition features the most spectacular collection of pearls ever assembled.

Pearls is a specially ticketed exhibition.

Pearls is organized by The American Museum of Natural History, New York, in collaboration with The Field Museum, Chicago.

National Sponsor Tasaki Shinju Co., Ltd.



DENIS FINNIN/ AMERICAN MUSEUM OF NATURAL HISTORY

Bamboo Masterworks: Japanese Baskets from the Lloyd Cotsen Collection

Through Feb. 23, 2003

Contemplate the cherished traditions woven together in Japanese basketry.

Bamboo Masterworks features treasures from the world's premiere collection of Japanese baskets. Because this collection is privately owned—cultivated over four decades by American businessman Lloyd Cotsen—its stunning baskets are seldom seen by the public. This exhibition offers a rare look at more than 100 masterpieces, some created by Japan's most revered artists, and reveals the significance of basketry in Japanese culture.

Selected for their artistry, originality and craftsmanship, these baskets will surprise you and take your breath away!

This exhibition is organized by The Asia Society and curated by Mary Hunt Kahlenberg.

The Sara Lee Foundation is the Presenting Sponsor.

Additional support provided by the Elizabeth F. Cheney Foundation.



PAT POLLARD



GEORGE PAPADAKIS/90435 08D

Make us part of your family traditions with these seasonal festivals.

Peaceable Kingdom Festival

Hear choral groups sing traditional songs from cultures around the world. Featured groups include the popular Polish-American Lira Singers, the captivating Mexican-American Cuerdas Classicas and the inspirational African-American gospel choir Imani Ya Watume.

Saturday, Dec. 28
11am–2pm
Free with Museum admission



KIMBERLY MAZANEK/90377.17AC

African Heritage Festival

During February, learn about Africa's landscape and cultures through stories, activities and scientific demonstrations. Ask for a schedule at the Information Desk.

Mark your calendars for these unique events:

Slavery's Buried Past: The Archaeology of Slavery **Documentary Screening and Panel Discussion**

Discover new insights into the personal lives of U.S. slaves with a documentary by award-winning journalist Bill Kurtis. Investigate a slave burial ground and see how slaves merged homeland traditions with American culture.

Saturday, Feb. 1, 2–4pm, \$10

Bookmark: Africa!

Journey across Africa with contemporary books and films about the cultures of this vast and diverse continent.

Families with children ages 11–14

Saturday, Feb. 8, 10am–noon

\$10 per person, members \$8

African Heritage Festival is made possible through the generosity of Abbott Laboratories.

Beyond the Diamond

These are the first of nine lectures. For a full schedule, visit www.fieldmuseum.org.

The Making of the Exhibition

Kristen Mueller,
National Baseball Hall of Fame and Museum

Hear the curator for *Baseball As America* discuss the challenge of creating an exhibition that reveals baseball's impact.

Tuesday, Feb. 18, 6pm

Defining American Identity in Baseball Fiction and Film

Dr. Bill Savage, Northwestern University

From the poem *Casey at the Bat* to the hit film *Field of Dreams*, see how baseball is a metaphor to explore the American identity.

Wednesday, Feb. 26, 6pm

Lecture Series (continued from calendar cover)

Lecture Series

Individual lectures: \$12, students/educators \$10, members \$8.

Full series subscription (save 20 percent): \$86, students/educators \$72, members \$58.

Tickets to any three lectures (save 15 percent): \$30, students/educators \$25, members \$20.

For more information or tickets, call 312.665.7400.

Credit Course

Enrollment information is available from UIC at www.oce.uic.edu or 312.996.8025. Course begins Feb. 11; all sessions meet at The Field Museum.

This program is presented by The Field Museum in collaboration with The Humanities Laboratory at the University of Illinois at Chicago.



Family Overnight

Dozin' With the Dinos

Sue the T. rex is having a sleepover! Join us for a night of family workshops, tours and performances. Explore ancient Egypt by flashlight, prowl an African savannah with man-eating lions and travel back in time to the Mesozoic Era. Then spread your sleeping bag amidst some of our most popular exhibitions. The event includes an evening snack and breakfast in the morning.

Families with children ages 6–12

5:45pm on Friday, Dec. 27 until 9am on Saturday, Dec. 28

\$45 per person, members \$38



MARK WIDHALM/SCIENCE

Courses

Introduction to Maya Archaeology

Dr. Helen Haines, TFM Anthropology Dept.

Investigate the fascinating world of the ancient Maya. Beginning 3,000 years ago, this culture built a sophisticated civilization that has left a lasting legacy on Central America. Learn about their ritual practices, political organization and intricate calendar systems in this overview of Maya history.

Wednesdays, Jan. 15–Feb. 5

6–8pm

\$70, members \$60



A96154

Advanced Fossils

Dr. Wendy Taylor, Geologist

Delve deeper into the world of fossils and learn how to interpret these time capsules from the past. We'll study invertebrate fossils and learn techniques for collecting, preparing and curating specimens. You'll also create your own fossil identification kit for future teaching and collecting. This class is designed for students who have already taken our Fossil Basics class.

Wednesdays, Jan. 22–Feb. 19, 6–8pm

\$80, members \$68

Prehistory of the Lake Michigan Basin

Dr. Scott Demel, TFM Anthropology Dept.

Discover how the great Lake Michigan influenced the settlement of the Midwest. Investigate how Native American cultures responded as Lake Michigan's shoreline changed over time with fluctuating water levels and shifting ecosystems.

Wednesdays, Feb. 5–19, 6–8pm

\$55, members \$47



Below is a calendar of current and upcoming temporary exhibitions. Some dates may change. Visit our website at www.fieldmuseum.org or call 312.922.9410 as the date of your visit nears.

Chocolate

Through December 31, 2002

Pearls

Through January 5, 2003

From Prairie to Field:

Photographs by Terry Evans

Through February 9, 2003

Family Workshops

Basketmaking: Soak, Bend, Twist and Knot

Jean Vondriska, Basketmaker

Create your own beautiful basket. Learn about the history of basket weaving around the world, then try your hand at this ancient craft. We'll look at a variety of baskets for inspiration and visit the special exhibition *Bamboo Masterworks: Japanese Baskets* from the Lloyd Cotsen Collection.

Families with children ages 8–14

Saturday, Jan. 18, 10am–1pm

\$14 per person, members \$12



CATHRYN SCOTT/90459.14C

WILLIAM BURLINGHAM/WB26C

The Ancient Near East: Myth and Magic II

Thomas Mudloff, Egyptologist

See how the world works through the eyes of ancient peoples. Focusing on Egypt, Syro-Palestine and Anatolia, we'll look at animal and goddess cults and examine how myth and magic were manipulated to serve certain ends. Discover what these beliefs reveal about a culture's world view.

Wednesdays, Feb. 19–March 26, 6–8pm

\$85, members \$72



RON TESTA AND S.A. WASKIVA/110530C

The Two of Us

Liz Cruger, TFM Education Dept.

Travel the Museum's exhibition halls, hear stories, touch objects, make art projects and enjoy snacks.

Families with children ages 3–5

Tuesdays, Jan. 21–March 11

10–11:30am or 1:30–3pm (Choose one time.)

\$95 per child, \$80 per member child

For each child, one adult attends at no charge.

This program is sponsored by The Siragusa Foundation Early Childhood Initiative.



Naturalist Certificate Program

Deepen your knowledge of the natural environment and share this passion with others. The Field Museum, the Morton Arboretum and the Chicago Botanic Garden offer an integrated program of nature study for naturalists of all levels.

Northern Illinois Fauna: Winter

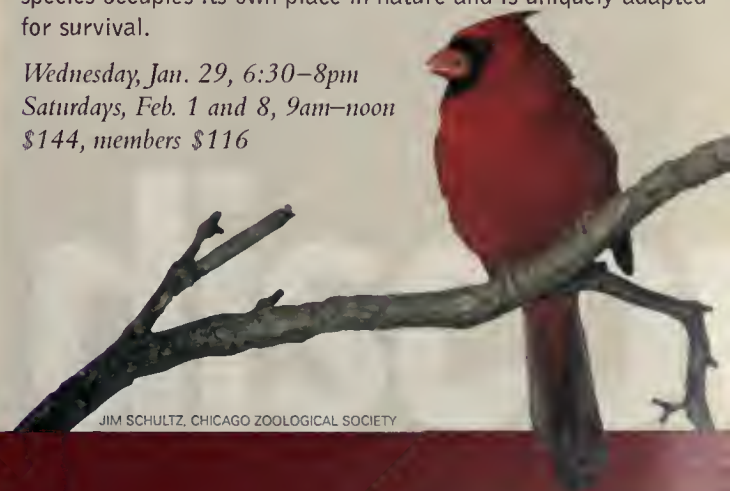
Chet Ryndak, former Superintendent of Conservation, Forest Preserve District of Cook County

From birth to death, season to season, discover how each animal species occupies its own place in nature and is uniquely adapted for survival.

Wednesday, Jan. 29, 6:30–8pm

Saturdays, Feb. 1 and 8, 9am–noon

\$144, members \$116



JIM SCHULTZ, CHICAGO ZOOLOGICAL SOCIETY

**A Celebration of Souls:
Day of the Dead in Southern Mexico**
Through February 9, 2003

**Bamboo Masterworks: Japanese Baskets
from the Lloyd Cotsen Collection**
Through February 23, 2003

Baseball As America
February 8–July 20, 2003

Behind the Scenes: Beyond Baseball

Will Pestle, TFM Anthropology Dept.

Have you ever played Senet, like the Pharaohs of ancient Egypt? Or Pok-ta-pok, like the Maya nearly 2,000 years ago? Go behind the scenes to the Museum's anthropology collections to learn about games and sports from cultures around the world.

Families with children ages 7–12

Friday, Feb. 21, 6–8pm

\$15 per person, members \$12

Coming in March...

Baseball Card Bonanza!

Mark Sivets, TFM Education Dept.

Grab your baseball card collection and join us to learn more about these modern-day "artifacts."

Families with children ages 7–12

Saturday, March 8, 1–2:30pm

\$10 per person, members \$8



KIMBERLY MAZANEK/89571.31AC

Reading the Landscape of Northern Illinois

*Dr. Wendy Taylor, Geologist, and Dr. Phil Janney,
TFM Geology Dept.*

Learn how to read the landscape to recognize the lasting effects of plants, animals, glaciers, ancient oceans and other natural forces.

Wednesdays, March 12 and 19, 7–9pm

Saturday, March 29, 9am–4pm

\$140, members \$116

Lecture

The Great Walls of Joliet

Discover the public art movement that may be Joliet's best kept secret. Since 1991, a group of nationally and internationally recognized artists has created more than 100 murals, mosaics and sculptures in public spaces throughout the city. Hear artists and community leaders discuss the power of public art in our everyday lives.

Saturday, March 1, 2pm

Free with Museum admission



FOREST PRESERVE DISTRICT OF DUPAGE COUNTY

The Field Museum salutes the people of Chicago for their long-standing, generous support of the Museum through the Chicago Park District. In addition, these programs are partially supported by the Illinois Department of Natural Resources and Illinois State Museum; by the Institute of Museum and Library Services, a federal agency; by the Illinois Arts Council, a state agency; and by a CityArts Program 4 Grant from the City of Chicago Department of Cultural Affairs.

Coming Soon—Eternal Egypt: Masterworks of Ancient Art From The British Museum *April 25–August 10, 2003*

See magnificent treasures from 3,500 years of ancient Egypt. Walk among colossal stone sculptures, golden mummy masks and delicate papyrus scrolls. Drawn from the world's most important collection of Egyptian art outside of Cairo, this epic exhibition reveals the splendors of one of the world's most enduring civilizations.

This exhibition is organized by the American Federation of Arts and The British Museum.

The exhibition and its national tour are made possible by Ford Motor Company. Ford has also provided additional support for this venue.

The Chicago presentation is made possible through the generous support of LaSalle Bank. Additional support has been provided by the Benefactors Circle of the AFA.



Live...from NATIONAL GEOGRAPHIC

Series Offers a World of Adventure

Find adventure, insight and inspiration through encounters with the world's top explorers, photographers, scientists and writers. Following on last year's tremendous success, The Field Museum is once again collaborating with National Geographic to present *Live...from National Geographic*.

Wild at Heart: Man and Beast in Southern Africa

*Chris Johns, National Geographic
Photographer*

Experience the primal wonder of Africa's wilderness as Johns shares spellbinding images and reflects on the future of wildlife conservation amidst growing human populations.

Tuesday, Feb. 18, 7:30pm



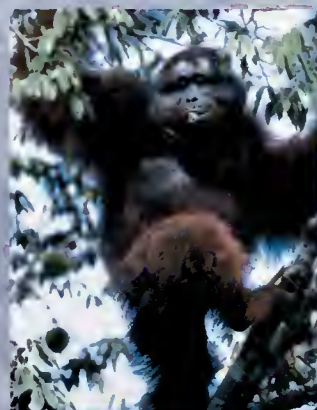
CHRIS JOHNS

Orangutans to Flying Frogs: Treasures of the Asian Rain Forest

*Cheryl Knott, Biological Anthropologist, and Tim Laman,
Biologist and Photographer*

See dramatic photos of the rain forest's most curious creatures, and hear the adventures of a husband-and-wife team who study life in the rain forest canopy.

Tuesday, March 18, 7:30pm



TIM LAMAN

Everest: 50 Years Later

Liesl Clark, Filmmaker

*Pete Athans, Brent Bishop, Peter
Hillary and Jamling Norgay,
Mountaineers*

Retrace the extraordinary feats of the pioneers of Mount Everest. Fifty years ago, Sir Edmund Hillary and Tenzing Norgay became the first men to make this incredible climb. A decade later, Barry Bishop became the first American to do the same. Join the sons of these famous men as they follow in their fathers' footsteps for the upcoming National Geographic Channel television special.

Tuesday, April 15, 7:30pm



LIESL CLARK FOR NATIONAL GEOGRAPHIC CHANNEL

Becoming Human

Donald Johanson, Paleoanthropologist

Ponder our human origins with the scientist who discovered the famous "Lucy," a 3.2-million-year-old skeleton that caused anthropologists to rethink the human family tree.

Tuesday, May 6, 7:30pm



DONALD JOHANSON

**Series Subscriptions—
Tickets currently on sale.**

Series tickets would make a great gift! At your request, The Field Museum will send subscription tickets with a personalized gift card.

*Patron tickets (reserved seating): \$98; TFM, NG and
Geographic Society of Chicago members \$86.*

*General admission: \$84; TFM, NG and Geographic Society
of Chicago members \$70; students \$48.*

Individual Events—

Tickets go on sale Jan. 20, 2003.

*Patron tickets (reserved seating): \$28; TFM, NG and
Geographic Society of Chicago members \$26.*

*General admission: \$24; TFM, NG and Geographic Society of
Chicago members \$22; students \$15.*

Member discounts available only on advanced ticket purchases and not at the door.

A 10 percent discount is available for groups of 10 or more with pre-registration.

Live...from National Geographic and the educational outreach activities related to the series are presented in collaboration with The Field Museum, the Geographic Society of Chicago, the National Geographic Education Foundation and the Illinois Geographic Alliance.

Special exhibitions open a window onto the Museum's work.



Trash to Treasure: Salvage Archaeology in The Field Museum's Backyard

Now Open!

Discover pieces of Chicago history that were buried in landfill almost a century ago and are now being revealed by new construction projects around the Museum. See a variety of bottles, stoneware, ceramics, metal objects and other items once used in early 20th-century Chicago hotels, restaurants, breweries and other businesses. You'll also learn more about the exciting work going on behind the construction walls at the Museum.

Artifacts made available courtesy of the Illinois State Museum.

From Prairie to Field: Photographs by Terry Evans

Through Feb. 9, 2003

Discover the value of scientific collections through 44 exquisite color photographs by a nationally recognized photographer. These images of birds, plants, fishes, reptiles, mammals and insects present an artist's view of the science that takes place behind the scenes at the Museum.



This exhibition was developed in collaboration with Terry Evans.

Visitor Information



Getting Here: With construction under way at nearby Soldier Field, your usual route to The Field Museum may have changed. Visit www.fieldmuseum.org for the latest information on parking, free trolleys and public transit.

Hours: 9am–5pm daily. Last admission at 4pm.

New Admission Fees: Please note that The Field Museum's admission prices have changed. Check our website for details. Remember, members receive free admission every day.

Tickets: *Chocolate*, *Pearls* and *Baseball As America* are specially ticketed exhibitions. Member passes can be reserved in advance by calling Ticketmaster at 312.902.1500 (service charges apply), or by coming to the membership desk near the Museum's south entrance (no service charges). Non-member tickets can also be reserved in advance through Ticketmaster or in person at the Museum's admission desks. Day-of tickets are available at the Museum while supplies last.

Accessibility: Visitors using wheelchairs or strollers may be dropped off at the west entrance. Handicapped parking and wheelchairs are available on a first-come, first-served basis. Call 312.665.7400 to check on the accessibility of programs that take place outside of the Museum.

Information: 312.922.9410 or www.fieldmuseum.org



Portrait of a Parrotfish



LEFT: JOHN WEINSTEIN/Z94363.09RD. TOP RIGHT: © JOHN G. SHEDD AQUARIUM, PHOTO BY PATRICE CEISEL. BOTTOM RIGHT: Z94363.04RD

The bird-like grin of a parrotfish, compiled of large, fused teeth, is of keen interest to biologists and conservationists who study coral reefs.

Collected in Bermuda in 1905, this skull of the Rainbow Parrotfish, *Scarus guacamaia*, is one of the oldest specimens in The Field Museum's collection of fish skeletons. Its design reflects how parrotfishes feed on coral reefs, their beak-like jaws scraping and biting stony corals in search of nutrient-rich algae. To perform this feat, their jaws are made of heavy plates of bone with an extra joint for greater flexibility. These two separate joints transmit powerful excavation forces, working just like the forward scoop of a bulldozer. And that's not all—the parrotfish has a second set of specially adapted jaws in its throat that finely crush the coral for easier digestion.

What happens next is why parrotfishes are so ecologically significant. They travel in sizeable schools—herds almost—huge clouds of sand pouring out the rear end. That's right: The ground-up coral in the parrotfish's stomach passes through its system and is expelled as white sand. One large parrotfish can produce a ton of sand each year. In addition to its beauty and fascinating jaws, the parrotfish is a critical measure of the health of coral reef ecosystems.

Dr. Mark W. Westneat, associate curator of zoology, chose this specimen. *Scientist's Pick* showcases artifacts that visitors may not normally see on exhibit—items that have an important story to tell or that are, in this case, held aside for research by the international scientific community.

*The pharyngeal jaws (left) and skull (bottom right) of a Rainbow Parrotfish, *Scarus guacamaia*.*

Evolution on an Island Continent: A Year in the Andes Mountains

John J. Flynn, MacArthur Curator, Geology

"It is an old story, but not the less wonderful, to hear of shells which were once crawling on the bottom of the sea, now standing nearly 14,000 feet above its level."

—Charles Darwin on the Andes Mountains, *The Voyage of the Beagle*

It's not too surprising to find seashells on the beach. But marine fossils perched on mountaintops are indeed a spectacular and incongruous sight. Like Darwin, I was first drawn to South America 16 years ago by a tantalizing report of ancient whale bones, not shells, sitting 6,000 feet high in the Andes. Since whales don't live in the mountains, understanding their journey from life in the ocean to their final—and unexpected—resting place on dry land could enlighten us about the massive tectonic upheavals that lifted them high above sea level. Dating these fossil-bearing deposits enabled our international team to calculate, for the first time, the precise initiation age (17 million years ago [Mya]) and average uplift rate (about 0.1–0.2 millimeter per year, or one inch every 150 years) of this part of the Andes Mountains.

Since then, I have undertaken almost two dozen expeditions throughout the 5,000-mile-long Andes chain, from the southern wind-swept peaks of Chilean Patagonia to the northern tropical mountain valleys of Colombia. At one site, in rocks surrounding our 14,500-foot-high base camp in the Altiplano plateau of northern Chile, we most recently discovered what is likely the world's highest location for fossil vertebrates. South America's mountainous areas once were considered virtually devoid of mammal fossils since most had come from a few high-latitude lowland areas. Our research now has uncovered thousands of specimens from at least a dozen regions that fill in previous gaps in the fossil record.

With the support of The Field Museum, a John S. Guggenheim Fellowship and a visiting professorship at the Universidad de Chile, I spent the past year in Chile with my family. While there, I undertook extensive research and fieldwork, built stronger ties with the Museo Nacional de Historia Natural de Chile and scientific colleagues, and synthesized the results of our long-term projects on how geological and climate changes since the dinosaur extinction 65 Mya influenced South America's exceptional living diversity.

South America's isolation as an "island continent" created a huge-scale natural experiment in evolution, the ideal laboratory for a paleontologist. Since the ancient supercontinent Pangea broke up, plate tectonic movements separated South America

from all other landmasses for most of the past 80 million years, until the Isthmus of Panama formed about 3.5 Mya. This long seclusion yielded a diverse and unique biota, including monkeys, sloths, anteaters, opossums, capybaras and chinchillas, that did not interact with species of other continents. Understanding how, when and where South America's isolated fossil communities were distributed, and how they responded to major changes such as mountain building or sea-level fluctuations, can generate new insights into their remarkable history. Our work has already produced exciting new results and is opening additional avenues for future collaborative investigation.

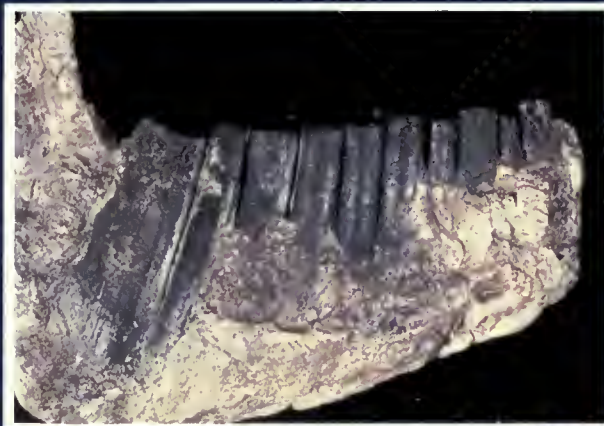
New vistas of the ancient past

Several key time intervals, ranging from 40 to 8 Mya, now are well represented in the new faunas we have discovered. One striking example is the 31.5- to 33-million-year-old Tinguiririca fauna from Termas del Flaco ("thermal baths of the skinny fellow"), a resort village near Argentina about 100 miles southeast of Santiago. It contains some 300 specimens of more than 25 species—almost all new to science—and partially fills in a 15-million-year-long gap in the South American fossil record. Tinguiririca also documents the first appearance of many major South American mammal groups, including the oldest South American rodents, which our analyses indicate had dispersed across the ocean from Africa. Such findings also dramatically revise our interpretation of the southern Andes' geological history. Long considered to date from the Mesozoic "Age of Dinosaurs" at least 100 Mya, our discoveries prove that the major pulse of mountain uplift began only after 17 Mya.

Grasses sprout early in South America

Although the Tinguiririca region is quite arid today, the fossils tell us that forests once covered virtually all of South America and animals that browsed on soft tree leaves and herbs dominated the archaic (65–34 Mya) mammal assemblages. Mammals that eat soft foods have low-crowned teeth like ours, with a thin cap of enamel covering the crown and shallow roots. In striking contrast, by Tinguiririca time almost all the mammals had extremely high-crowned teeth with enamel reach-

Background: Andes Mountains 300 kilometers south of Santiago, Chile's capital



Left: Lower jaw with hypsodont teeth, an adaptation to eating abrasive grasses. *Tinguiririca fauna*, central Chile.

Right: Partial skeleton in volcanic rock, Rio Cachapoal, central Chilean Andes.

Both specimens are not ungulates, extinct, endemic mammals from South America.

ing down to the root tips, a condition called hypsodonty. Today, such teeth are found only in animals adapted to open, grassy habitats, such as bison, cows, antelope or horses. Since grass is gritty, the teeth in hypsodont mammals maintain a good grinding surface longer than teeth adapted to browsing.

So what do these teeth and other features of the *Tinguiririca* mammals tell us? That their environ-

ment was open with abundant grasses—quite possibly the Earth's first savanna-woodland grasslands. At 31.5 Mya, this is the first appearance of a completely different and novel ecosystem, at least 15 million years earlier in South America than anywhere else on the planet. Our field collecting and research studies are just one example of how Field Museum curators contribute to the global framework of scientific knowledge. **ITF**

Venturing into the Unknown: The Challenges and Rewards of Mountain Fieldwork

During my year in Chile, our team, which included colleagues André Wyss (University of California-Santa Barbara), Reynaldo Charrier (Universidad de Chile) and Darin Croft (University of Chicago and The Field Museum), struck out to expand our discoveries in the central Andes of Chile. We decided to revisit a tantalizing but virtually unknown territory for fossils, almost 200 miles farther south than *Tinguiririca*.

As our daylong drive wore on, lengthy silences and palpable anxiety set in as we headed for a kind of “no-man’s-land” beyond the last police station, which required us to explain our work at the border checkpoint, dusk creeping in and a fierce, cold wind whipping around us. We immediately found a grove near a stream, providing some protection and drinking water, and made camp in the dark. Settling for a quick, cold dinner, we then dove for our sleeping bags, hoping for a productive morning.

While one rock level did not pan out well, another yielded numerous interesting

mammal jaws the first day. Additional prospecting revealed new sites and a spectacular assortment of specimens, including one exquisite herbivore skull and jaws, partial skulls of several rodent species and a few interesting plant fossils, all about 15–20 Mya. We still have not recovered a single reptilian, amphibian or finned aquatic friend. These exquisite finds were excavated from cliffs that are equally awe-inspiring—contorted into dramatic S-shaped folds, hundreds of feet thick, encompassing many different kinds of rocks.

So we would not become too complacent or productive, however, torrential rains soon poured over some 60 straight hours. Our small stream raged, carrying crashing boulders and surrounding Croft's tent with a new branch of the creek. (He moved his tent to higher ground flanking the affectionately termed Laguna de Croft.) Work was not possible for several days, so we gladly spent countless hours reading, writing and talking in our dry truck. We tried to make morning coffee and cook dinner in the deluge, but one

memorable phrase summed up the ironic humor of our situation: “Mighty good fried potatoes, Flynn, or are those boiled?” Waterlogged as our bodies—and potatoes—were, we still reveled in the exciting discoveries we'd just made and that still lie ahead.

Reynaldo Charrier, Universidad de Chile, makes the most of a fruitless situation in our warm, dry truck.



DARIN CROFT

Recent Grant Preventive Medicine to North American Collections

Amy E. Cranch, Editor

For All Hallows Eve, my friends and I created an altar with cherished items to honor our beloved ancestors—a grandmother's music box, a father's photo, a brooch, a dress, an old family recipe. As each woman shared stories about her item, I thought about how these remnants line our personal history like the potshards of an archaeological site. Each of us, like an anthropologist, has to piece together who we are with tiny fragments of our past.

The Field Museum's anthropology department must guard its collections with a similar reverence. Steve Nash, head of collections, and Ruth Norton, chief conservator, recently received a \$400,000 grant from Save America's Treasures (SAT) to help us conserve about 125,000 items in our North American collections. Embodying the artistic, ceremonial and utilitarian legacies of dozens of cultures, these objects suffer from threats that endanger their physical and scholarly integrity. The SAT grant provides funds to staff and implement appropriate conservation treatments.

Some objects are chemically unstable. "Glass disease" develops when humidity fluctuations over time cause some components to leach out, leaving visible voids and cracks. This most often affects tiny beads that decorate costumes and other ritual objects. "Weeping glass" occurs during intermediate stages of deterioration when calcium, sodium and potassium seep out in water droplets that eventually dry up and form carbonate crystals on the surface. The only way to prevent either condition is to control humidity. Much of this will be addressed when portions of the collections are moved to the new temperature-

and humidity-controlled Collections Resource Center. Many objects were inadequately housed in the Museum's early years and show breakage, tears, distortion or abrasions. In surveying an object, conservators might ask: Can it be moved? Can an earlier faulty repair be restored? What archival-quality mounting materials are available that will not harm the object or create future problems? It's imperative to make as few alterations as

possible since burns, facial oils, food, ritual oils or other residues might tell us how the object was used. It's painstaking work, but what we do now has long-term implications for researchers, conservators or native peoples who visit the objects for cultural or ceremonial purposes.

Museums worldwide are trying to mitigate a routine but dangerous practice of the 1920s and '30s—the use of arsenic as a pesticide. Arsenic is impossible to remove completely if, for example, it's trapped in fur or finely woven textiles. When it's detected, as much of it is removed as possible and the object is sealed in a polyethylene container. Staff and visitors who handle the objects take special precautions, such as wearing plastic gloves and laboratory coats.

The time it takes to conserve an object, whether one hour or one year, relates as much to its size and complexity as it does to its condition. If it's made of multiple materials—wood, glass, cloth and feathers, for example—each damaged component might have its own treatment plan. And because there are so many objects and the process is often time intensive, curators and conservators frequently have to determine which ones to restore in relation to their Museum or cultural significance; only a small portion can be completed.

On the other hand, creating a safe environment that reduces the rate of deterioration can be applied to a whole collection. "Conserving these objects is a lot like preventive medicine," said Norton. "Vaccinations affect the health of more people than heart transplants."

The decision to conserve an object is not without ethical concerns. Some artifacts are better left untouched if intervention were to skew their history of ownership and care. Also, no matter how knowledgeable we are, we can't comprehend what an artifact's non-tangible qualities might mean to a culture. If the paint on a ceremonial mask begins to flake, for example, some cultures might believe that's nature taking its course, and it should be left alone. Whatever the case, The Field Museum's North American collections are one of the world's greatest resources, and it's our responsibility to preserve them in the best way possible. **ITF**

The beads on this Kenyan bag, while not covered by the SAT grant, only required cleaning to remove the accumulated carbonate.



RUTH NORTON/FM104266

Members Offered Rare Chance to Research Lions in Kenya

You might think that living next door to Tsavo, Kenya's largest national park, would be paradise, but ranchers and herdsman do not. The region's lions kill hundreds of livestock every year and have forced some reluctant ranch owners to convert their holdings to cropland. If Kenya is to maintain natural havens for wildlife, reserve managers must find ways to mitigate lions' conflicts with humans.

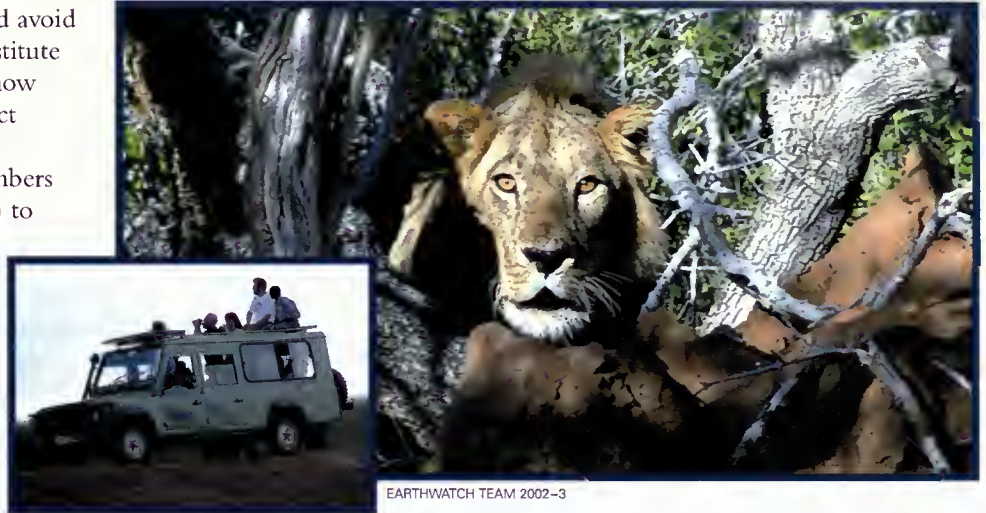
Bruce Patterson, Field Museum MacArthur curator of mammals, and his American and Kenyan colleagues are studying the ecology and behavior of Tsavo's infamous lions to help predict and avoid such conflicts. Sponsored by Earthwatch Institute (EI), the project focuses on understanding how lions use their territories, how prides interact and how prey varies each season.

Patterson is enlisting Field Museum members to fill two volunteer teams (10 people each) to observe lions and collect samples. Normally, teams are reserved for members of EI, which creates conservation partnerships between scientists and the public. You must book your reservation for either July 18-30 or Oct. 3-15 by March 1, 2003. After that, the spots will be released to EI. The expedition will cost about \$2,700, which includes comfortable accommoda-

tions and superb food in a breathtaking setting but not airfare to and accommodations in Nairobi.

Gain an intimate portrait of these charismatic mammals while helping to create peace between them and their neighbors. Call Heather Scott first at 312.665.7784 to obtain your Field Museum registration code before registering through EI.

Visit www.earthwatch.org/expeditions/patterson.html for more information on the project.



EARTHWATCH TEAM 2002-3

Botany Department Getting Repotted

Its roots too deep and limbs overgrown, the botany department needs a bigger pot.

In order to continue increasing our knowledge of plants and fungi and how to protect them, the botany department is revitalizing three major areas: the herbarium, staffing and conservation tools for scientists and the public.

The herbarium, originally founded in 1893 as one of the Museum's first collections and named after John G. Searle in 1972, has served as the world's garden for scientists here and abroad. Among some 2.7 million specimens are some of the largest collections of flowering plants; mosses and liverworts; ferns; economically and medicinally useful plants; and fungi and lichens. But outdated facilities and our growing collections—nearly 30,000 specimens added yearly—have created the need to renovate the herbarium. The upgrades will incorporate new laboratories, space-saving storage and climate controls for a stable environment.

Even more threatened than many plant species are the people who study them. The Museum has received five grants from the National Science Foundation's (NSF) Partnerships for the Enhancement of Expertise in Taxonomy (PEET), NSF's urgent response to the ever-shrinking pool of trained taxonomists. At about \$750,000 each, it is simply unparalleled that the Museum received this many, a testament to our leadership in taxonomy and training. Botany alone received two PEET grants and hopes to add to the next generation of systematic biologists. In addition, the department has welcomed three new curators and plans to continue expanding staff. Sabine Huhndorf, a PEET recipient, works on microfungi; Thorsten Lumbsch will research lichens; and Rick Rea specializes in flowering plants.

Unless you plan to lug along a 25-pound textbook the next time you visit the trop-

ics, there are few illustration books or tools to speed up your learning and plant identification process. As a result, we are developing several hard copy and web-based tools for beginners and biologists alike. Rapid color guides are inexpensive laminated placards that each contain 40 live-plant illustrations and can be taken into the field. Microherbaria are books made from scanned herbarium specimens and are useful to biologists who compare pressed and dried specimens. The rapid reference collection organizes neotropical specimens from the main herbarium in a novel way that's easy and quick to navigate. Finally, at least three databases are being developed that utilize thousands of images and can be searched in a variety of ways.

Just as a garden needs pruning in order to thrive, so does the botany department in order to continue its world-class research and conservation initiatives.

Background: May Apple, *Podophyllum peltatum*

Charles Knight: Prehistoric Visions of a Beloved Muralist

Alexander Sherman, Strategic Planning

Like many of you, I grew up at the natural history museum. Not a week passed when I wasn't practicing the long Latin names of dinosaurs. In my memory, I can still recall every single Permian reptile and Cretaceous behemoth in New York's American Museum of Natural History (AMNH). After I returned from college, though, the museum had closed that area, and my childhood sanctuary had changed into something different.

There was evolution and walkways at different heights and windows overlooking the park ... even new color on the walls. Changes in biological sciences and museum education had brought changes to the museum itself. But at-home-ness set in when I joyfully encountered a Charles Knight mural—the same one I carried as a tattered postcard throughout my childhood. For many of us, Knight's murals embody the daydreams that natural history museums stir in us.

At The Field Museum, Knight's famous battle between *Tyrannosaurus rex* and *Triceratops*, painted in 1927, is so well loved that it has become the standard encounter for portraying the age of dinosaurs. Today, a Field Museum docent might point out inaccuracies in this vivid reconstruction. For example, *T. rex* never stood up with its tail on the ground that way; the balanced, feral position in

which Sue crouches is probably more accurate. But no matter how the science changes, the drama and inspiration of Knight's murals remain true.

In 1896 at age 22, Knight met the AMNH paleontologist. Together, these two men would revolutionize museum displays. Freed from glass boxes and taxonomic categories, dinosaur fossils sprang out in true-to-life poses. In his own practice, Knight studied fossils closely and made dramatic sculptures from which he painted the murals.

I recently met Rhoda Knight Kalt, Knight's granddaughter and self-appointed keepsake of his legacy. She came to the Field in 1994 for the opening of *Life Over Time*, which combines contemporary interactive displays with the beautiful Knight murals commissioned decades ago. In addition to maintaining www.CharlesRKNight.com, a compendium about Knight and his influence, Knight Kalt can share hours of anecdotes about her grandfather, whom she called "Topsy." For example, he stayed at the Drake as he prepared The Field Museum's murals. Each day, very early, he would walk along the lake to the Museum. It was often so bitter and blustery that winter that his nose frosted over, a souvenir from our aptly named Windy City that he never forgot. Anyone who has made the trek can vouch for that.

In addition to the battle between *T. rex* and *Triceratops* and the mastodons shown in the photo, keep your eyes open for other favorites next time you visit the Museum, including the *Apatosaurus* in the Elizabeth Morse Genius Dinosaur Hall and the saber-tooth tiger in the last room of *Life Over Time*. You may get a fresh look at the beloved artist's work next year, for our library is planning a small exhibition to commemorate the 50th anniversary of his death in 1953.

Knight's inspiration has reached far and wide. Even King Kong took his cue from Knight's sketch of Bushman. Today, the vivacity of his artwork holds its own with computerized special effects and animated dinosaurs. Having inspired countless students to enter paleontology over the decades, Knight's dinosaur visions will live on.

Rhoda Knight Kalt, Charles Knight's granddaughter, with her daughter, Melissa, at The Field Museum in 1969.



GN81615.2

Double Discount Shopping Days

Whether you're buying for family or friends, The Field Museum Store is a sure thing for distinctive holiday gifts.

On Dec. 9, 14 and 18, members receive 20 percent off all store merchandise, including handcrafted gifts, educational toys and festive souvenirs. You'll also find a handsome selection of items related to *Chocolate*, *Pearls* and *Bamboo Masterworks*. Follow your nose to luscious chocolate foods from around the world. Look for pearl items to suit every taste and budget, including jewelry, bath products, ornaments, frames and elegant tableware. Or arrange a home basket of bamboo-related items, such as vases, tea accoutrements, books, table runners and CDs.

Remember to bring your membership card. The stores are open daily from 10am to 5pm.



PETER BOSY

The Essential Year-round Gift

What can you give this holiday season to friends and family who seem to have everything? A Field Museum general or annual fund membership is the essential year-round gift.

With rates beginning at \$60 for individuals and \$70 for families, general membership privileges include free basic admission every day; free passes to 2003's special exhibitions; a subscription to *In the Field*; discounts on programs, food and merchandise; a free tote bag; and our Members' Nights' 50th anniversary in June, a once-a-year opportunity to go behind the scenes in our academic and exhibition areas.

An annual fund gift membership (\$100–\$1,499) offers even more chances to get involved, including

behind-the-scenes tours and receptions, invitations to exclusive events and guest passes for friends and family.

Purchase your general memberships at 312.665.7700 or annual fund memberships at 312.665.7777. Orders placed by Dec. 18 will be delivered by Dec. 24. As thanks for your purchase, you will receive a complimentary *Pearls* poster.

Members'-only Baseball Viewings

Shoeless Joe's shoes. Babe's bat. Jackie's jersey. See the treasures of our cherished national pastime and discover how baseball embodies the American spirit in *Baseball As America*.

The members'-only viewings are 9am to 3pm on Feb. 7, and 5 to 10pm on Feb. 9, 13, 16 and 17. Invitations will be mailed, and reservations are required.



NATIONAL BASEBALL HALL OF FAME AND MUSEUM

Field Museum Tours at a Glance

For prices and other information, call Field Museum Tours at 800.811.7244 or email fmtours@sover.net.

Prehistoric Caves of France and Spain

April 20–May 3, 2003

Leaders: William Barnett, TFM archaeologist, and Paul Bahn, expert on cave art and early humans

Discover the splendid cave art of Altamira II, Lascaux II, Niaux, Las Monedas, Pech Merle and Cueva del Castillo. Tour incomparable archaeological, ethnographic and art museums, including Bilbao's Guggenheim and the Museum of Prehistory in Les Eyzies. Visit charming medieval villages, including the well-preserved Santallina del Mar.

The Amazon by Riverboat

Jan. 18–26, 2003

Leader: Dr. Barry Chernoff, TFM curator of fishes

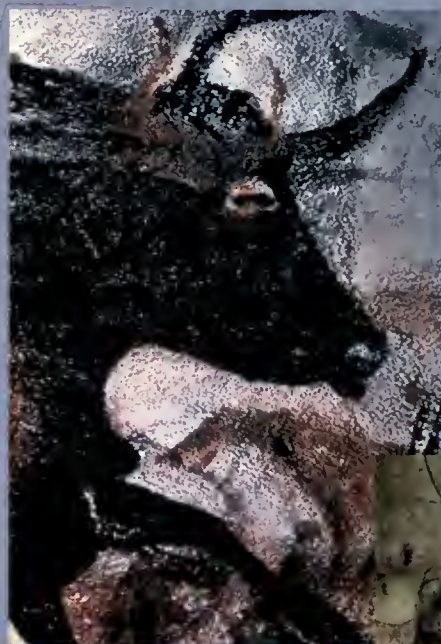
Explore the Amazon. Ucayali and Tapiche Rivers in Peru aboard a 14-cabin riverboat. Search for river dolphins; howler, squirrel and capuchin monkeys; sloths; capybaras; and unusual birds such as the jabiru and hoatzin. Optional extension to Machu Picchu and other sites around Cuzco.

Egyptian Odyssey

Jan. 25–Feb. 8, 2003

Leader: Thomas Mudloff, TFM lecturer and instructor of Egyptology

Explore the world of the ancient pharaohs by land and riverboat. Visit the Pyramids of Giza, Egyptian Museum, Valleys of the Kings and Queens, Karnak, the temples of Khnum, Horus and Isis, and Abu Simbel's three colossi of Ramses II. Five-star accommodations.



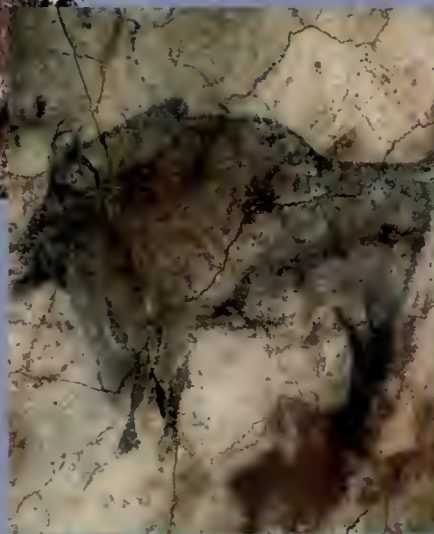
TODD NIELSEN

Tanzania Migration Safari

February 1–14, 2003

Leaders: Bill Stanley and Mary Anne Rogers, TFM zoologists

Travel at the best time of year to see hundreds of thousands of wildebeest and tens of thousands of zebras and antelope. Catch sight of lions, cheetahs, hyenas and other predators. Enjoy four days in the Serengeti, then three days at Ngorongoro Crater.



The Seychelles and Madagascar

Feb. 16–March 5, 2003

Sail to sun-drenched isles where palm trees on endless white beaches fringe sparkling coral lagoons rich with sea life. The Seychelles islands sparkle like gems in the vast Indian Ocean. Madagascar, the world's "eighth continent," harbors wondrous plants and animals that have evolved in splendid isolation.

Also Planned for 2003 and 2004:

- The Pantanal Region: Argentina, Iguassu Falls, Paraguay, Bolivia and Brazil
- Behind the Scenes in Moscow and St. Petersburg
- Wonders of Ancient China
- Archaeology of Peru
- Empires of Indochina: Cambodia, Vietnam and Laos
- World of the Ancient Maya
- Egyptian Odyssey and Egypt Revisited

"Meeting with different archaeologists at their excavations was terrific."

IN THE FIELD



Spring
2003
March-May

The Field Museum's Member Publication

Eternal Egypt
South American
Conservation
Awarded \$12 Million

Our Essential Enterprises



JOHN WEINSTEIN/GN88119.6

You may have ventured into our stores in search of a distinctive handmade gift, or witnessed Stanley Field Hall transformed into an elegant, glittering ballroom. Our store and special event enterprises are part of the visitor experience at The Field Museum. They are also essential to generating income, especially important as nearby construction inhibits access to the Museum and as economic challenges affect the daily operations of cultural institutions nationwide. We are grateful for each store purchase and special event since proceeds directly support the Museum's ongoing exhibitions, research and educational programming.

Over the past few years we have enhanced our merchandise selection to offer items that are unique to our collections. You can purchase a replica of Sue's tooth, for example. If you visited the Pearls exhibition, what you learned about Akoya or freshwater pearls may have informed your buying decisions as you

Chinese colleagues excavated from the Longshan period (ca. 2500-1900 BCE). These objects help you remember a special day at the Museum.

This year, look for our new online store at www.store.field-museum.org, which will launch in March. You will be able to browse by category and exhibition for distinguished apparel, gifts, jewelry, books, children's merchandise and more. Also visit the stores in the Baseball As America and Eternal Egypt exhibitions.

The grandeur and history of Stanley Field Hall, the outdoor terrace that surrounds our Brachiosaurus and other Museum areas make the perfect backdrops for corporate parties, weddings or annual meetings. Special events are our biggest growth opportunity among business enterprises. When we built a sales strategy and developed partnerships with preferred vendors, event revenue jumped tremendously.

The Museum can incorporate a number of features into an event, from docent-led excursions through an exhibition to organized family activities. In many cases, people attending an event

have not been here before, increasing our audience reach. Special events are also a benefit of the new Corporate Relations Program (see page 19).

We frequently receive praise from event guests. Phil Condit, chairman and CEO of The Boeing Company and the U.S. chair for the 2002 Transatlantic Business Dialogue (TABD) CEO Conference, sent this letter following the keynote dinner held here: "The dinner at the Field allowed us to showcase one of Chicago's most significant cultural and historic landmarks to an international audience. The high-level audience of American and European CEOs and senior government leaders was truly awed and, I believe, inspired by Stanley Field Hall."

Business enterprises provided 16 percent of the Museum's total revenue in 2002, a testament to their importance. They are just one additional way we serve you, the visitor, while also helping to keep our exhibition, education and scientific efforts going.

John W. McCarter, Jr.

John W. McCarter, Jr.
President & CEO



MARK WIDHALM/GN90504.09D

Stanley Field Hall is a gorgeous place for a special event.

passed through the Pearls Store. And while our curators are conducting research in the field, they are also purchasing local handcrafted goods to sell in the stores. Anne Underhill, assistant curator of Asian anthropology, brought back pottery vessels from Shandong, China, that are replicas of forms she and her

What do you think about In the Field?

For general membership inquiries, including address changes, call 312.665.7700. For questions about the magazine *In the Field*, call 312.665.7115, email acranch@fmnh.org, or write Amy E. Cranch, Editor, The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496.


INTHEFIELD INSIDE

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Cover: See magnificent treasures in *Eternal Egypt: Masterworks of Ancient Art From The British Museum*. Mummy mask of Satdjehuty, provenance unknown, New Kingdom, early 18th Dynasty (ca. 1500 BCE). © Trustees of The British Museum, Courtesy AFA.

The Field Museum salutes the people of Chicago for their long-standing, generous support of the Museum through the Chicago Park District.

**The Field
Museum**

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EVE ENSHWILLER



ALVARO DEL CAMPO

2

Eternal Egypt tells how changing politics over 3,000 years spurred a vast array of art styles. *Top: Stela of Neferhotep, from Thebes, Deir el Medina, New Kingdom, 19th Dynasty (ca. 1241-1199 BCE).*

4

A Field Museum botanist is researching oca, a principal but highly threatened crop in the Andean highlands. *Middle: Farming family weeding oca near Lake Titicaca.*

16

Our conservation programs received nearly \$12 million to protect natural areas in South America. *Bottom: A dormant volcano in Sierra del Divisor, Peru.*

20

A Field Museum zoologist is part of a team that discovered a new insect breathing mechanism similar to lung ventilation in humans.

Museum Campus Neighbors

Shedd Aquarium Shedd Aquarium's newest exhibit, *Wild Reef—Sharks* at Shedd, opens April 15. *Wild Reef* immerses guests in a Philippines coral reef system to explore the connections among animals, habitats and humans. Housed in a new underground wing, it features one of the most diverse collections of sharks in North America and 500 species of beautiful reef fishes. For information, visit www.shedd Aquarium.org or call 312.939.2438.

Adler Planetarium It's an alien invasion! Travel to imaginary worlds and encounter fantastic alien life forms in the *StarRider™* Theater, or search for new worlds outside our solar system in the Sky Theater. Visit a new temporary exhibition and family activity center, or enter *CyberSpace* to explore the possibilities of life beyond Earth. Visit www.adlerplanetarium.org or call 312.922.STAR for information.

Museum Campus A pedestrian tunnel is now open that links the CTA's Red Line subway station at State and Roosevelt to the elevated Orange and Green Lines stop nearby. Free trolleys will continue transporting visitors between the Museum Campus and the train stations.

Recognizing the tunnel's proximity to the Museum Campus, one wall depicts life forms and events from prehistoric eras. Also look for the Millennium Mosaic, a striking feature composed of individually carved tiles created by Field Museum visitors in 1999.

Eternal Egypt Exhibition Bridges Beauty and Function

Tiffany Plate, Writer, Exhibitions

All Images © Trustees of The British Museum, Courtesy AFA

When The British Museum decides to lend some of its largest and most important pieces of Egyptian art for a traveling exhibition, it's not to be taken lightly. Literally. The enormity and significance of these objects will impress even the most seasoned museum-goer. And when you see them at The Field Museum in *Eternal Egypt: Masterworks of Ancient Art From The British Museum*, you'll understand.



Book of the Dead, Papyrus of Nakht: Worshipping Osiris, provenance unknown, New Kingdom, late 18th or early 19th Dynasty (ca. 1336–1294 BCE).

Spanning 3,000 years, this exhibition tells how Egypt's political transformations spurred a vast array of glorious works of art. From a quartzite head that once topped a 26-foot tall Amenhotep III statue, to papyrus sheets from the *Book of the Dead*, to traditional funerary pieces, to Greco-Roman style portraits, Field Museum visitors will get a broad picture of the artistic and anthropological histories of these works.

Most of the 144 pieces in *Eternal Egypt* were made to worship the gods, immortalize a person or event, or guide the deceased in the afterlife. In essence, what we now view as art was first functional, integrated into every aspect of expression and daily life.

Changing politics, changing art styles

Note: All dates are approximate.

Many objects highlight the various dynasties and time periods that witnessed significant changes in

artistic styles. In the Predynastic period (5000–3100 BCE), a pre-unified Egypt was developing many artistic conventions that would remain for thousands of years, including symbolic images, hieroglyphic writing and the grid system used to transfer paintings onto three-dimensional objects. You'll see rare examples in the exhibition of the artist at work, such as the drawing board pictured on page 3.

When Menes, Egypt's first ruler, united Upper and Lower Egypt, a strong central government supported the work of scribes, sculptors and other artists and encouraged new artistic methods. The familiar seated and standing figures became well established during this time. Later, in the Old Kingdom period (2686–2181 BCE), pharaohs employed teams of skilled craftsmen to create monuments in their honor. Khufu, for example, built the Great Pyramid at Giza, and his son Khafre

erected the Great Sphinx. One supple, sophisticated carved nude figure in the exhibition is a striking representation of a high official.

When Egypt experienced a major political breakdown around 2181 BCE, art also disintegrated into less refined, more provincial styles. Civil and political turmoil were reflected in Egypt's art during two later phases as well. Historically supported by the reigning pharaohs, artistic production waned, and surviving objects are relatively rare.

Under Amenhotep III, who ruled peacefully and powerfully during Egypt's political and artistic peak, creative styles became increasingly cosmopolitan and lavish. He expanded the great Temple of Amun at Karnak and built its counterpart at Luxor. This construction boom of the New Kingdom Empire (1550-1069 BCE) gave rise to a middle class of independent craftsmen who could change their status through their artistic or military ability. A treasure in the exhibition from this era is a stately, life-sized red granite lion, one of a pair that was originally inscribed to Amenhotep III with "The good god, lion of rulers."

Akhenaten, Amenhotep III's son, dramatically changed the old polytheistic religion to focus on the sun god, Aten, and the royal family. A new aesthetic broke many conventions in imagery and style, but Akhenaten's edicts were quickly overturned once Tutankhamun, his successor, came into power. Between 1295 BCE and the 7th century, an elaborate decorative style characteristic of the Ramesside period gave way to a conscious revival of the older, sparer concept of "proper Egyptian art" during the Saite renaissance. The exhibition concludes with the Ptolemaic period, which blended in Greco-Roman features and styles. Look for a funerary stela, an upright stone with text and pictures, of Cleopatra's high priest.

The Field Museum's take on Eternal Egypt

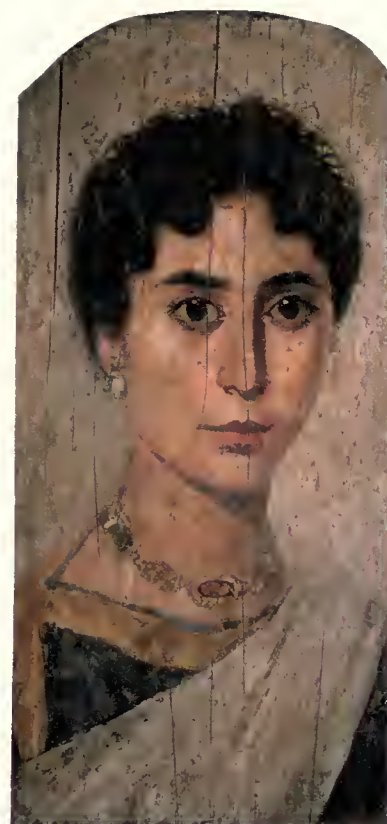
Because the exhibition leans heavily on the archaeological record, The Field Museum's design team has illuminated major themes from each time period to make the significance of the art more understandable. During the Middle Kingdom (2040-1650 BCE), for example, pharaohs were shown with care-worn expressions, reflecting the political instability that ended the Old Kingdom. Though still divine, pharaohs were no longer serene, but somber stewards of the burden of kingship. One superb example in the exhibition is a statue of Sesostriis III, one of The British Museum's most well known Egyptian statues.

The exhibition also explores the critical function of hieroglyphs. To some, the symbols may seem merely aesthetic, but they were first and foremost a functional writing system that could serve magical purposes as well, imbuing an object with a spiritual life. Hieroglyphic texts include prayers for the deceased, stories of great heroes or events and praise for the gods.

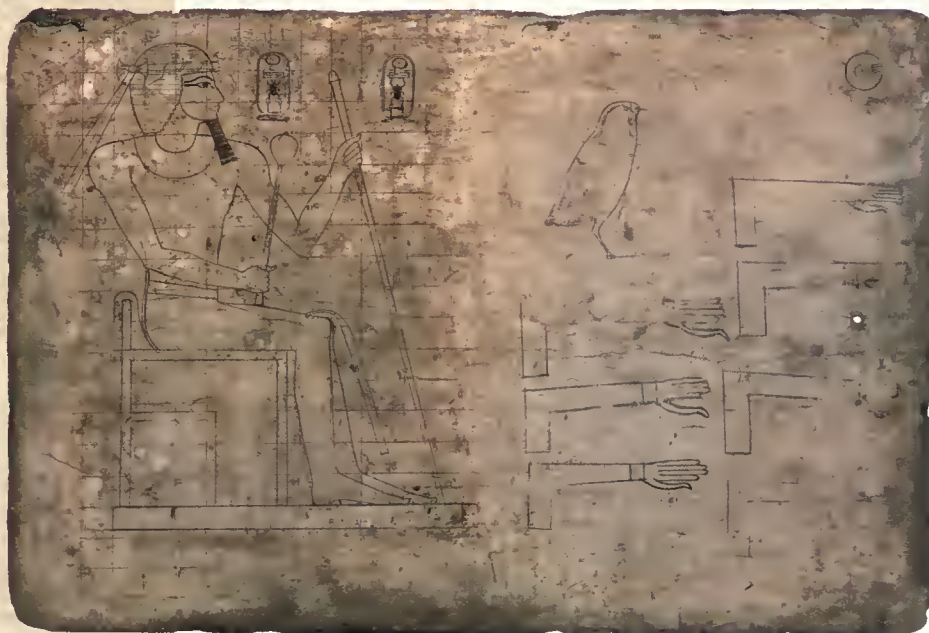
Working with Robert Ritner, associate professor of Egyptology at the Oriental Institute, the exhibition team has translated hieroglyphs from three funerary stelae. Visitors will see a section of text highlighted, then hear the English translations. As the hieroglyphs speak for the dead, visitors get a comprehensive picture of the art's function as well as appeal. **ITF**

Eternal Egypt will be on view at The Field Museum April 25 through Aug. 10. For further reading, purchase the exhibition catalog, Eternal Egypt: Masterworks of Ancient Art From The British Museum, by Edna Russman, in the Museum stores.

This exhibition is organized by the American Federation of Arts and The British Museum. The exhibition and its national tour are made possible by Ford Motor Company. Ford has also provided additional support for this venue. The Chicago presentation is made possible through the generous support of LaSalle Bank. Additional support has been provided by the Benefactors Circle of the AFA.



Panel portrait of a woman, said to be from er-Rubayat, Roman Period (ca. AD 160-170).



Drawing board, provenance unknown, New Kingdom, 18th Dynasty (ca. 1475 BCE).

Digging into Diversity in the Andean Highlands

Story and Photos by Eve Emshwiller, Abbott Laboratories Adjunct Curator of Economic Botany

Imagine having to eat the same food day after day. We get a tiny taste of this experience when turkey leftovers dominate the weeks following Thanksgiving, but it is a daily reality for many peoples around the world. Boredom is not the only issue. In crop plants, uniformity can also mean vulnerability. The Irish potato famine, for example, resulted from cultivating genetically identical potatoes with no resistance to the blight fungus that plagued them.



Farming family near Pisac with its oca harvest.

Thousands of kinds of potatoes grow in the Andes Mountains, the crop's homeland. Andean farmers also grow other tuber crops that are cultivated and eaten similarly to potatoes. One is oca (*Oxalis tuberosa*), whose tubers look like elongated spuds. Tubers, which are technically stems, not roots, are the preeminent staple in rural highland communities throughout Ecuador, Peru and Bolivia. Growing many species and a variety within each species helps reduce risk and improve food security.

Ancient Andean people succeeded in wresting food from the soil in the highland's harsh, unpredictable climate. Rather than "putting all their eggs into one basket," they domesticated a dizzying array of crop plants, some of which, like the potato, have attained worldwide importance. This agricultural system formed the foundation for the Inca Empire and earlier Andean civilizations. Oca might be among the oldest of Andean crops. Tubers said to be almost 10,000 years old were uncovered in Peru's Guitarrero Cave, a famous site that con-

tains some of the most ancient signs of agriculture in South America. Most tuber remains don't preserve well, so other archaeological evidence of oca is scanty.

Diversity in danger?

Although we see an increasing variety in our supermarkets, this wealth disguises an irreplaceable decrease in crop diversity worldwide. Decades ago, scientists became concerned about genetic losses in traditional crop varieties, which, along with related wild species, harbor genes that could improve the crop's quality, yield or pest resistance. Seed banks now hold precious genetic material in trust, but they cannot hold it all. In the Andes, as farmers adopt newer, high-yielding varieties, will older, genetically diverse kinds be abandoned? Will diverse native crops be replaced with more marketable ones as roads and markets join remote areas? What wild crop relatives will remain as cloud forests are cut and burned?



This diverse array of oca tubers was cultivated by one farming family.

It is difficult to conserve oca crops when so little is known about their origin, relatives and the environmental and social factors that affect their diversity. In Chicago, we are familiar with only a few *Oxalis* species sold as “shamrocks.” On the contrary, there are hundreds of *Oxalis* species in South America—from succulent herbs to scraggly shrubs, from tiny bulbs to long, clambering vines—and their taxonomy and evolutionary relationships are still being worked out. Some *Oxalis* species occupy very small ranges, and many species have yet to be discovered because of the Andes’ seclusion.

From DNA fingerprints to conservation blueprints

My research aims to provide data needed to conserve oca and its wild relatives. I study wild species collected in Bolivia, Peru and Argentina to determine their evolutionary relationships and find out which ones are most closely related to oca. I’ve confirmed earlier reports that oca has eight chromosome sets, while most of its allies have only two sets. My DNA studies have shown that oca is probably a hybrid, and I have identified the probable wild ancestors.

I visited three communities in southern Peru near the famous Inca ruins of Pisac. Clusters of adobe houses are surrounded by small fields reaching above 4,100 meters (13,500 feet) in elevation that are cultivated using the ancient Andean footplow, or *chakitaklla*. Through interviews in Spanish and Quechua (the Incan language), I asked about the different kinds of oca, their names, uses and qualities: Which are preferred for sweetness or floury texture, require longer cooking time, last longer in storage, and are more resistant to pests or drought? I asked how farmers select seeds, acquire new kinds and exchange varieties among families and communities. All of these practices can influence the crop’s continuing evolution.

Studying how people classify plants can also clarify how they manage them. Quechua people use colorful names, such as “puma’s paw,” “llama’s nose” or “pig poop” for different potato varieties. One oca variety is called “drunk,” after a drunkard’s red nose, and another is called “naked rooster,” alluding to an arrogant person who really possesses nothing. But does assimilation cause loss of knowledge of oca varieties? One isolated village near Pisac seems to retain more traditional culture. My observations suggest that the village uses its oca names more

consistently, knows more about their traits and grows a greater diversity.

Currently, I am comparing the farmers’ names of oca varieties with their DNA fingerprints. Will the tubers that farmers use in different ways be reflected in dissimilar fingerprints? On the other hand, some tubers from different areas look alike, and may or may not have the same name. If the fingerprints show that they are genetically identical, this will inform us about how tubers are exchanged among communities.

Since the Andean region is extremely variable, we cannot generalize about how various environmental or social factors affect oca’s diversity. Hail, drought or frost often ruin oca crops near Lake Titicaca. On the humid eastern edge of the Andes, however, farmers contend instead with crop diseases and seemingly depend more on oca, perhaps because moisture promotes blighted potatoes. To really understand what influences oca diversity and, eventually, build solid conservation plans, we need to study other areas of the Andes.

Is it possible for people to retain their traditional knowledge of crop diversity, even as they have increasing contact with the outside world? Understanding how Andean agricultural practices affect genetic diversity can help us slow the loss of these precious resources for future generations in the Andes. **ITF**

Eve Emshwiller’s research has been generously supported by Abbott Laboratories.



Below: Oca terraces on the misty eastern Andean flank.

Left: These girls saw me “picking” wild Oxalis species and offered their own contribution.



Field Museum Plays Key Role in Mapping Tree of Life

Greg Borzo, Media Manager, Academic Affairs



M. SKAKU

The early bird in this picture has found a cladogram, or a branching diagram that shows the evolutionary relationships between different groups of animals.

An ambitious, multi-disciplinary, 15- to 20-year program to fill in and flesh out the Tree of Life was recently launched by the National Science Foundation (NSF). Field Museum scientists will serve as principal investigators on three of the seven grants awarded around the globe to construct a new framework for understanding the evolutionary relationships between all species, extinct and living. These three projects represent more than half of the \$12 million awarded for the first year of the Assembling the Tree of Life (AToL) program.

Darwin's inspired vision of a grand Tree of Life, "with its ever-branching and beautiful ramifications," has challenged scientists for generations. He speculated that all life forms—from the smallest microorganism to the largest vertebrate—are genetically related in an immense evolutionary tree. That imagery has prompted scientists to classify all organisms into groups and discern relationships that explain their similarities and differences. Today, many branches remain unanalyzed, even unknown, and AToL will address this problem.

"Progress in many research areas, from genomics to evolution, is being encumbered by the lack of a rigorous framework of evolutionary relationships," said Shannon Hackett, Ph.D., Field Museum assistant curator of birds. "The conceptual, computational and technological tools are now available to resolve most, if not all, major branches of the Tree of Life."

Phylogenetic information has proved useful in many ways, such as helping scientists focus biological research; track the origin and spread of diseases; develop new medicines and agrochemical products; conserve species; control invasive species biologically; and restore ecosystems.

AToL's task will require a sustained effort by scientists working across the world and across disciplines, including taxonomy, paleontology, phylogenetics, computer science, statistics, anthropology, ecology, physiology, and developmental and molecular biology.

Programs in which Field Museum scientists will participate

Early Bird (\$2 million)

Early Bird will determine the evolutionary relationships among major groups of birds to help organize and understand the vast information already available on avian ecology, evolution, physiology and behavior.

The project will generate DNA sequence data for all major avian lineages and analyze this evidence to determine patterns and evolutionary relationships. The results will be posted on a website accessible to researchers and the general public.

"Birds are among the most prominent and engaging creatures in most ecosystems," said Hackett. "The extraordinary number and diversity of scientific studies on birds figure largely in our understanding of the natural world and humanity's place in it."

"Birds' position high in many food chains, together with their great mobility, make them sensitive indicators of environmental quality," she added. "Furthermore, the monitoring of bird populations is widely used to set conservation and management priorities."

Spider Phylogeny (\$2.7 million)

This project will produce a map of the deepest branches of spider relationships by combining new comparative genomic data with new and re-assessed data on morphology and behavior.

Spider fossils date back 380 million years, and there are more than 37,500 described species today. Without spiders, insect pest populations would soar, and humans would be greatly affected.

"We'll sequence the DNA and assemble morphological and behavioral data of representative samples of at least 500 genera of spiders," said Petra Sierwald, Ph.D., Field Museum assistant curator of insects. "Then we'll combine and analyze the resulting large data matrices using new computer software."

Archosaur Phylogeny (\$2 million)

This project will attempt to uncover the evolutionary patterns among archosaurs, which vary tremendously from marine crocodiles to birds. Archosaurs may be the most dominant group of terrestrial vertebrates from the Triassic to the present, but few scientists have studied the relationships between major groups of these animals. Many tantalizing questions—such as the exact origin of modern birds—remain to be answered.

Working with Early Bird, scientists will create a supermatrix of molecular and morphological data from specimens in collections worldwide. This will form the core of an interactive online database of systematic data, images, literature and links to other databases. **ITF**

For information about AToL, visit www.nsf.gov/bio/pubs/awards/atol_02.htm.

YOURGUIDE TOTHEFIELD

Calendar of Events for Spring 2003 March–May

Inside: Exhibits Festivals Family Programs Adult Programs



Eternity Held Captive: The Social and Religious Context of Egyptian Art

Lecture

Robert Ritner,
*The Oriental Institute—
The University of Chicago*

Discover how the sculptures, wall carvings and paintings of ancient Egypt held a power far beyond that of simple decoration. These artworks ensured the survival of the gods, the state, the king and Egyptians themselves. Examine the role of art in Egyptian society, including the religious concepts that it expressed and the artistic conventions it employed.

Saturday, April 26, 2pm
\$12, students/educators \$10,
members \$8

See Family Programs inside for an exciting series of hands-on workshops about Egyptian art.



New Exhibition— Eternal Egypt: Masterworks of Ancient Art From The British Museum

April 25–Aug. 10, 2003

See magnificent treasures from 3,000 years of ancient Egypt.

In *Eternal Egypt: Masterworks of Ancient Art From The British Museum*, you'll see 144 stunning artworks drawn from the world's most important collection of Egyptian art outside Cairo.

Ancient Egypt was not only one of the world's earliest and longest-lasting civilizations, it was also among the most creative in human history. Walk among colossal stone sculptures, golden mummy masks and delicate papyrus scrolls as you travel the full length of this remarkable civilization and trace its cultural and artistic achievements.

From the first pharaohs in 3100 BCE through the Roman occupation that began more than 3,000 years later, this epic exhibition lets you explore the delicate balance of tradition and innovation that is a hallmark of Egyptian culture and art. Along the way, you'll learn about the Egyptian artist's creative process, the role of art in magic and the close connection between writing and art.

Come discover the secrets of one of the world's most enduring civilizations.

This exhibition is organized by the American Federation of Arts and The British Museum.

The exhibition and its national tour are made possible by Ford Motor Company. Ford has also provided additional support* for this venue.

The Chicago presentation is made possible through the generous support of LaSalle Bank.

Additional support has been provided by the Benefactors Circle of the AFA.

DETAIL OF MUMMY MASK OF SATDJEHUTY. ©TRUSTEES OF THE BRITISH MUSEUM, COURTESY AFA

The **Field**
Museum

General Museum Information: 312.922.9410

Family and Adult Program Tickets and Information: 312.665.7400

Hit a home run with a visit to The Field Museum.

BASEBALL ★AS AMERICA★

Through July 20, 2003

Shoeless Joe's shoes. Babe's bat. Jackie's jersey. See the stuff of legends and discover how our cherished national pastime embodies the American spirit.

Drawn from the collections of The National Baseball Hall of Fame and Museum, 500 artifacts show how baseball mirrors our nation's values, struggles, triumphs and aspirations. Celebrate good times, great feats and legendary heroes when you rediscover this beloved sport through the lenses of history, science, economics and popular culture.

Baseball As America is a specially ticketed exhibition.

This exhibition is organized by The National Baseball Hall of Fame and Museum, Cooperstown, New York.

The national tour of **Baseball As America** is sponsored by Ernst & Young.

THE NATIONAL BASEBALL HALL OF FAME AND MUSEUM

Beyond the Diamond: Baseball and American Culture Lecture Series

Explore baseball's history, legends, science and impact on American culture through this captivating lecture series.

Individual lectures: \$12, students/educators \$10, members \$8.

Tickets to any three lectures (save 15 percent):

\$30, students/educators \$25, members \$20.

This program is presented by The Field Museum in collaboration with The Humanities Laboratory at the University of Illinois at Chicago.

Here's the Pitch: Baseball and Product Endorsements

Dr. Roberta Neuman, New York University

Discover the powerful intersection between baseball, product endorsements and American iconography as you examine how some of baseball's most successful pitchers have symbolized the ideals of their era.

Tuesday, March 4, 6pm

Exclusion in Baseball

Panelists: Dr. Manning Marable, Suzan Shown Harjo, Tony Castro, Dr. John Hoberman

Join us for a panel discussion to explore how ethnic diversity on baseball rosters has helped the game evolve into a world sport.

Tuesday, March 11, 6pm

Body Image of the Baseball Player

Dr. Sander Gilman, Humanities Laboratory, University of Illinois at Chicago

See how our cultural attitudes about physique are reflected on the baseball diamond and in depictions of ball players in literature and film.

Thursday, March 13, 6pm

Gender and Baseball

Christine Shelton, Smith College

From the All-American Girls Professional Baseball League in WWII to opening the Little League to girls in 1974, examine the history that women have had with our national pastime.

Tuesday, March 25, 6pm



Physics and the Science of Baseball

Dr. Robert Adair, Yale University

Join a physicist who worked for the National League to find out how ball clubs increase their competitive edge by exploiting the scientific principles that affect the game.

Tuesday, April 8, 6pm

Media and Baseball

Jerome Holtzman, Baseball Writer and Historian

Meet the man who was designated as the "Official Historian for Major League Baseball" by Baseball Commissioner Bud Selig. Bring all your baseball questions to the expert!

Tuesday, April 15, 6pm



A Whole New Ball Game: The Changing Culture of Professional Baseball

Dr. George Gmelch, Union College, Schenectady, NY

From the social dynamics of the team bus to the growth of major league salaries, explore how the culture of baseball has changed in the past 40 years.

Tuesday, April 22, 6pm

Ballpark Tours

Get a behind-the-scenes look at Chicago's famous ballparks. You'll experience the dugouts, press boxes and (weather permitting) playing fields through a specially guided tour. At Wrigley Field, you'll also see the clubhouse. Feel free to bring your cameras, baseballs and mitts along. Afterward, return to The Field Museum to explore the *Baseball As America* exhibition on your own and receive a surprise souvenir.

Wrigley Field

*Saturday, May 17,
9am–2pm
\$45, members \$38*

Comiskey Park

*Saturday, May 31,
9am–2pm
\$45, members \$38*

Each trip meets at The Field Museum. Trolleys will transport you to and from the ballparks.



Celebrate Earth Month with us!

This April, learn more about our precious environment through exhibitions, stories and scientific demonstrations. Ask for a schedule of each day's activities at the Information Desk.

Mark your calendars now for these unique events:

10 Major Risks to the World and Life as We Know It

Speaker Event

Stephen Petranek, Editor-in-Chief, Discover



Join us for a provocative evening you'll not soon forget. The world's leading science magazine, *Discover*, has developed a list of 10 ways that the world could end tomorrow, as well as 10 other calamities that threaten the human race. These threats are woven into the physics of how our universe operates, such as Earth's propensity to reverse its magnetic

poles. Petranek will discuss these doomsday scenarios and how we could prevent them.

Thursday, April 10, 7pm

\$20, students/educators \$18, members \$15

JOHN WEINSTEIN/NGO/90.038D

BioBlitz: Finding Nature Amidst the Smokestacks

Panel Discussion

Find out what more than 100 scientists discovered last summer when they gathered in Chicago's Lake Calumet region to see how many species they could spot in 24 hours.

Saturday, April 12, 2:30pm

Free with Museum admission

Soil Science and Wiggling Worms

Family Workshop

Andy Hershberger, TFM Education Dept.

They squirm, wiggle, shimmy and wag ... they're worms! Meet these often misunderstood creatures up close to find out how they keep soil healthy.

Saturday, April 5

Families with children ages 5–8, 10–11:30am

Families with children ages 9–12, noon–1:30pm

\$10 per person, members \$8



Ancient Egypt Family Series

Travel back in time to ancient Egypt with four fun family workshops. Enjoy this program as a series or register for individual programs.

Families with children
ages 7–12
Series: \$36 per person,
members \$28.
Individual
workshops:
\$10 per person,
members \$8.



Writing in Ancient Egyptian Hieroglyphs

Bob Cantu, TFM Education Dept.

Unlock the mysteries of a 4,000-year-old language!
Practice writing with reeds and natural inks on papyrus.

Saturday, April 12, 10am–noon

Profile Vision: Drawing Styles of Ancient Egypt

Liz Cruger, TFM Education Dept.

Learn how to draw like the ancient Egyptians.
Decipher paintings, mix colors and create your
own work of art.

Saturday, April 19, 10am–noon

©TRUSTEES OF THE BRITISH MUSEUM. COURTESY AFA

Lectures

The 100-Year Quest for the Giant Sable of Angola

John Frederick Walker, Journalist

Search for the endangered giant sable of Angola, a coal black antelope with majestic five-foot-long horns that has been trapped in a war zone for 27 years. Share the excitement of a post-war expedition that confirmed its survival.

Saturday, April 5, 3pm

\$10, students/educators \$8, members \$7



The Leakey Foundation

Lecture Series

The Minds of Monkeys and Apes

Dr. Dorothy L. Cheney and Dr. Robert M. Seyfarth,
University of Pennsylvania

Find out what the language and behavior of apes reveal about the minds of human children. Two primatologists detail how their research on baboons in Botswana offers insight into human cognition.

Tuesday, April 29, 7pm

\$18, students/educators \$15, members \$12

Presented in collaboration with the Leakey Foundation.



©RICHARD D. ESTE

Smith Symposium 2003: Birds in Focus

Don't miss the keynote address by David A. Sibley, the renowned naturalist, birder, artist and author of the Sibley Field Guide Series.

Saturday, May 3, at Ryerson Woods, Deerfield, Ill.

Call 847.968.3321 for details.

The Field Museum is collaborating with the Friends of Ryerson Woods, the Lake County Forest Preserves and other partners to present this off-site program.

Exhibits are scheduled to run until the end of the program. Some dates may change. Visit our website at www.fieldmuseum.org or call 312.922.9410 as the date of your visit nears.

Creating Art, Building Communities:
Joliet and Friends of Community
Public Art
Through July 6, 2003

Baseball As America
Through July 20, 2003

Modern People, Traditional Path:
Figurines From Cochiti Pueblo
Through August 10, 2003

Ancient Egyptian Gods and Goddesses

Liz Cruger, TFM Education Dept.

Find out who's who among ancient Egypt's many gods and goddesses through artworks and age-old stories.

Saturday, April 26, 10am–noon

Ancient Egypt in 3-D: Sculptures and Reliefs

Heather Hug, Riverside Art Center

How did the Egyptians make their sculptures and wall carvings? How did these pieces last for thousands of years? Encounter the wonders of ancient Egyptian sculpture and carve your own masterpiece.

Saturday, May 3, 10am–noon

Fieldtrips

Fossil Hunt at Mazon Creek

Dave Dolak, Columbia College

Do you like to hunt fossils? Come with us to the world-famous Mazon Creek site to discover what Illinois was like more than 300 million years ago! Plan on a one-quarter mile walk to fossil locations.

*Families with children
ages 7–12*

*Saturday, March 29
or Saturday, April 12
(Choose one date.)*

*8am–3pm
\$38 per person,
members \$27*



Fieldtrips

Spring Bird Watching: Bald Eagles

Alan Anderson, Naturalist

Behold the powerful and handsome birds that are our national symbol. We'll journey to the Illinois banks of the Mississippi River, which attract more bald eagles than any other location south of Alaska. Bus trip is 3.5 hours each way.

*Saturday, March 8, 6am–6pm
\$60, members \$50*



The Field Museum salutes the people of Chicago for their long-standing, generous support of the Museum through the Chicago Park District. In addition, Museum programs are partially supported by the Illinois Department of Natural Resources and Illinois State Museum; by the Institute of Museum and Library Services, a federal agency; by the Illinois Arts Council, a state agency; and by a CityArts Program 4 Grant from the City of Chicago Department of Cultural Affairs.

Courses and Workshops

An Introduction to the Land of the Pharaohs

John Larson, The Oriental Institute—The University of Chicago

Discover how ancient Egyptians thought about the world, learn about their culture and explore the legacies of this incredible civilization. Class includes viewings of the Egyptian Gallery at the Oriental Institute and *Eternal Egypt* and *Inside Ancient Egypt* at The Field Museum.

*Wednesdays, April 9–23, 6:30–8:30pm at OI
Wednesdays, April 30–May 14, 6:30–8:30pm at TFM
\$115, TFM or OI members \$100*

Behind the Scenes—Pacific Islands: The Story of Our Collection

John Terrell and Chris Philipp, TFM Anthropology Dept.

Join us for a curator-led tour that starts in our exhibition halls and then goes behind the scenes to explore one of the world's premiere collections of artifacts from the Pacific Islands.

*Wednesday, May 21, 6pm
\$15, members \$12*

Eternal Egypt: Masterworks of Ancient Art From The British Museum

April 25–August 10, 2003

Eviction and Homecoming: The Story of Brazil's Kranhãcarore Indians

September 12, 2003–February 8, 2004

Einstein

October 17, 2003–January 5, 2004

Family Workshops

The Two of Us

Liz Cruiger, TFM Education Dept.

Travel the Museum's exhibition halls, hear stories, touch objects, make art projects and enjoy snacks. Topics include birds, fossils, turtles, the Aztecs and more!

Families with children ages 3–5

Tuesdays, April 1–May 20

10–11:30am or 1:30–3pm (Choose one time.)

\$95 per child, \$80 per member child

For each child, one adult attends at no charge.



CATHRYN SCOTT/9045710A

Behind the Scenes: Botany

Eve Emswiler, TFM Botany Dept.

Explore 2.6 million incredible botany specimens. Wow! Join a Field Museum botanist to discover how this vast collection is used to learn about plants from all over the world.

Families with children ages 7–14

Friday, May 16, 6–8pm

\$15 per person, members \$12

Making Nature Connections for Children

David Stokes, Naturalist and Environmental Educator

Expand your skills for teaching children about nature and the environment. Learn how to use songs, stories, riddles, humor and multisensory activities to engage young minds. This course is part of the Naturalist Certificate Program.

Friday, May 16, 6–9pm,

Saturday, May 17, 9–5pm, and Sunday, May 18, noon–5pm

\$155, members \$125

*All sessions meet at North Park Village Nature Center,
5801 N. Pulaski*



JOHN WEINSTEIN/IGN90491 204D



Plan Ahead for Summer Camp

Summer Worlds Tour 2003: Unlock the Mysteries

Don't miss the exciting and unique summer camp organized collectively by The Field Museum, Adler Planetarium and Shedd Aquarium. Examine Egyptian hieroglyphs, meet sharks from tropical waters and investigate the possibilities of life in outer space. This summer camp is as educational as it is fun!

Children ages 5–10 years old

Weekdays, 8:30am–3pm

Choose from one of four week-long sessions:

July 7–11, July 14–18, July 21–25, or July 28–Aug. 1

Beginning in March, register through the Adler Planetarium at 312.322.0329 or www.adlerplanetarium.org/camp.

\$220 per child, members \$200

JOHN WEINSTEIN/90488 560



Live...from NATIONAL GEOGRAPHIC

Series Offers a World of Adventure

Find adventure, insight and inspiration through encounters with the world's top explorers, photographers, scientists and writers. Following on last year's tremendous success, The Field Museum is once again collaborating with National Geographic to present **Live...from National Geographic**.

Individual events: \$24; FPM, NG and Geographic Society of Chicago members \$22; students \$15.

Member discounts available only on advanced ticket purchases and not at the door.

A 10 percent discount is available for groups of 10 or more with pre-registration.

Orangutans to Flying Frogs: Treasures of the Asian Rain Forest

Cheryl Knott, Biological Anthropologist,
and Tim Laman, Biologist and Photographer

See dramatic photos of the rain forest's most curious creatures, and hear the adventures of a husband-and-wife team who study life in the rain forest canopy.

Tuesday, March 18, 7:30pm

Everest: 50 Years Later

April 18 speaker event is sold out. You may watch *Surviving Everest* on Sunday, April 27, at 8pm on the National Geographic Channel.

Becoming Human

Donald Johanson,
Paleoanthropologist

Ponder our human origins with the scientist who discovered the famous "Lucy," a 3.2-million-year-old skeleton that caused anthropologists to rethink the human family tree.

Tuesday, May 6, 7:30pm



Live...from National Geographic and the educational museum sciences series are presented in collaboration with The Field Museum, the Graham and Susan M. Thompson, the National Geographic Education Foundation and the Illinois Geographic Society. These events are made possible in part by the generous support of the National Geographic Society, the National Geographic Society Foundation, and the National Geographic Society.

Explore the artwork of two unique communities.

Modern People, Traditional Path: Figurines From Cochiti Pueblo

Through Aug. 10, 2003

Enjoy the playful social commentary of artists who are blending contemporary American culture with a traditional art form. See clay sculptures of bikers, tourists and celebrities made by Cochiti potters, especially known for their "storyteller" figurines of women with children on their laps.



JOHN WEINSTEIN/A114195 01D

Artists at the Field

Cochiti potter Janice Ortiz will demonstrate sculpting techniques and discuss her family's work and history.

Saturday—Sunday, March 15–16, 11am–2pm

Free with Museum admission

Creating Art, Building Communities: Joliet and Friends of Community Public Art

Through July 6, 2003

Discover the public art movement that may be Joliet's best kept secret. Since 1990, a group of nationally and internationally recognized artists has created more than 100 murals, mosaics and sculptures in public places throughout the city. Explore Joliet's history through scale models of these colorful works.



This exhibition was developed by The Field Museum in collaboration with Friends of Community Public Art in Joliet, Illinois.

COURTESY OF FRIENDS OF COMMUNITY PUBLIC ART

Visitor Information



Getting Here: With construction under way at nearby Soldier Field, your usual route to The Field Museum may have changed. Visit www.fieldmuseum.org for the latest information on parking, free trolleys and public transit.

Hours: 9am–5pm daily. Last admission at 4pm.

To get tickets: Baseball As America and Eternal Egypt are specially ticketed exhibitions. Member passes can be reserved in advance by calling Ticketmaster at 312.902.1500 (service charges apply) or coming to the membership desk near the Museum's south entrance (no service charges). Non-member tickets can also be reserved in advance through Ticketmaster or in person at the Museum's admission desks. Day-of tickets are available at the Museum while supplies last.

Accessibility: Visitors using wheelchairs or strollers may be dropped off at the west entrance. Handicapped parking and wheelchairs are available on a first-come, first-served basis. Call 312.665.7400 to check on the accessibility of programs that take place outside of the Museum.

Information: 312.922.9410 or www.fieldmuseum.org



JOHN WEINSTEIN/090448 39C

Mini Monster Mandibles



*Texas blindsnake,
Leptotyphlops dulcis*

They're like Pac Man on caffeine. Although more conspicuous snakes such as boas gradually engulf their prey, blindsnakes—about the diameter of spaghetti—gobble their prey, their jaws moving a startling four times per second.

Blindsnakes are the sister group to all other living snakes, but little is known about their basic biology. Whereas bigger snakes typically consume large, furry mammals, blindsnakes eat tiny termites and ant brood. Even more puzzling is that there are major differences in the jaw machinery between each of the three blindsnake families. While one family, for example, is toothless on top with a flexible, toothed lower jaw, another family is built completely the opposite.

Nate Kley, who chose this Scientist's Pick, is using high-speed video, x-ray video and high-power microscopes to understand the mandible mechanics of these miniscule munchers. Boas "walk" over their prey, their jaws stepping forward in opposition. One blindsnake family, however, "gallops," shooting its jaws outward, rotating the teeth forward and then scooping the food in. It's a quandary, but one that scientists are eager to unravel to help better understand snake evolution. Visit <http://marlin.bio.umass.edu/biology/brainerd/kleyvids.html> for video clips of blindsnakes at work.

Kley is the John Caldwell Meeker postdoctoral fellow in geology. While it is generally agreed that snakes and lizards are related, there's little consensus about how. Kley, along with Olivier Rieppel, chair of geology, and Maureen Kearney, assistant curator in zoology, will be investigating their evolutionary affinities from a molecular perspective, as opposed to the more common morphological approach.

Moore Foundation Awards Nearly \$12 Million to South American Conservation Programs

By the Staff of the Environmental and Conservation Programs

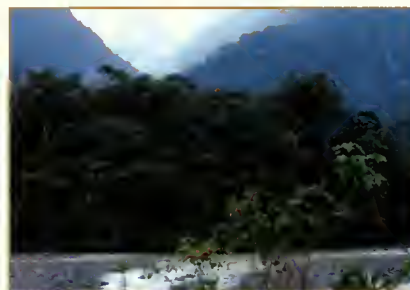
The Field Museum's Department of Environmental and Conservations Programs (ECP) has received two significant grants from the Gordon and Betty Moore Foundation to work to ensure lasting conservation for outstanding natural areas in South America. The first grant for \$1 million supports the implementation and management of Parque Nacional Cordillera Azul (PNCAZ) in central Peru for its first two years. (See May–June 2001 *In the Field* for a story on the park.) The second grant for \$10.8 million will enable ECP to roll out a matrix of conservation initiatives in other high-priority sites in the Andes and Amazonia.

\$1 million to PNCAZ

The heart of PNCAZ is a mix of mountain crests, sheer rock cliffs, broad lowland valleys, high-elevation marshes and isolated lakes. This huge diversity of habitats and the richness of their associated plant and animal species are striking. Roughly the size of Connecticut, the park is large enough to protect entire biological communities—many of them globally endangered—and the natural processes that are critical to sustaining them.

The Field Museum provides technical support to CIMA, a Peruvian conservation organization dedicated to managing the park and its buffer zone. CIMA is developing the Plan Maestro, a comprehensive management plan. It is also hiring and training park guards and other employees and engaging neighboring communities in creating and implementing the plan.

As part of our efforts to involve neighboring communities, ECP is collaborating with the Museum's Center for Cultural Understanding and Change (CCUC) to conduct asset mapping, an inventory of the organizational and cultural strengths of each community surrounding the park. In a recent workshop, selected residents from 53 of the 57 nearby communities were trained to facilitate asset mapping. The results will identify entry points for building long-term relationships that lead to conservation contracts and to economic activities that are anchored in the local ecology and culture. Opportunities that support the park while also economically benefiting the communities include direct employment in the park, diversified family plots, agroforestry, ecotourism and reforestation with native trees.



ROBIN FOSTER

*Serranías Cofán, Ecuador
(55,000 hectares, 212
square miles)*



JENNIFER EAGLETON

*Cordillera Azul, Peru (1.35 million
hectares, 5,212 square miles)*





ALVARO DEL CAMPO

Yavarí, Peru (1.12 million hectares, 4,324 square miles)

\$10.8 million for the Andes and Amazonia

The second grant from the Moore Foundation will enable ECP and its collaborators to create additional critical refuges for biodiversity in the Andes and Amazonia and to build a base for lasting conservation in four regions of South America. The Moore-funded programs cover the next five years and fall into three categories.

(1) Survey areas for conservation value and for potential creation of new protected areas

Field Museum scientists and their in-country and international collaborators will conduct rapid biological and social inventories to identify biologically rich landscapes in need of immediate protection. We already have begun work in two sites in Pando, Bolivia, and in Sierra del Divisor and Yavarí in Peru. Sierra del Divisor awaits final steps for becoming a new national park that will protect ancient volcanoes and spectacular richness at the border with Brazil. The protected status of Yavarí is also pending.

(2) Implement management of at least 1.5 million hectares of Andes-Amazon protected areas

In addition to implementing the new national park in Peru, ECP and CCUC are working with the Cofán in Ecuador to manage their ancestral territories from the foothills of the Andes—the site of the new Reserva Ecológica Cofán Bermejo—to lowland Amazonia at the border with Peru. They are also working with several local institutions in Pando to establish a model for regional growth that bases economy on ecology.



ALVARO DEL CAMPO

Sierra del Divisor, Peru (1.16 million hectares, 4,478 square miles)

(3) Develop training and tools to improve local conservation management

Long-term success of our programs ultimately depends on the degree to which local communities embrace conservation efforts as their own. ECP trains conservation professionals, community leaders and teachers to increase local capacity for conservation action. Moreover, ECP draws from the Museum's collections and scientific expertise to build practical identification and management tools, including field guides, online databases, data books, CDs of bird voices, multi-lingual scientific reports and booklets on ecological practices for communities.

The Moore Foundation–Field Museum collaboration offers a major opportunity to unlock the power of science in service of immediate, strategic action for conservation. **ITF**



ROBIN FOSTER

Pando, Bolivia (64,000 hectares, 247 square miles)

From Dust to Dawn: Collections Moving Toward Brighter Home



JOHN WEINSTEIN/GN90531 09D

Assessing the collections before their move into the CRC.

John Maniatis, CRC Prep Team Member, Anthropology

"If the point is sharp, and the arrow is swift, it can pierce through the dust no matter how thick." —Bob Dylan (1941)

For more than a year, a steady stream of artifacts has been journeying from the depths of The Field Museum toward a brighter future in the Collections Resource Center (CRC), where much of our anthropology, geology and zoology collections will be moved. Now under construction on the Museum's southeast side, the CRC is scheduled to be complete by the end of 2004. With collections assembled over a century's time, it's a mammoth job to prepare for a move this significant, and during the process, there have been countless opportunities to utter a resounding "wow."

This "wow" factor is what the CRC is all about. The new facility, made possible by generous support from former Governor George Ryan and the State of Illinois, will meet exceptional standards for preserving our collections and will provide essential housing and research space. Scholars will have better access to many collections, including ethnographic and archaeological artifacts, rocks and paleobotanical fossils, preserved animals and oversized items such as boats and dinosaur bones. The CRC also will provide room for the collections to grow for decades and will free up valuable floor space for public exhibitions in the main building.

A prep team was formed in 2001 that will eventually dismantle and move eight anthropology storage rooms — or some 200,000 objects from nearly 11,000 shelves and drawers. A recent federal grant from Save Americas Treasures is supporting conservation treatments for some of the North American collections moving into the CRC.

Before the physical move, curators, collections managers and conservators work together to assess the collections. Curators have a deeper, more con-

textual knowledge of the artifacts' sacred, cultural or functional uses and may, for example, suggest that everyday household goods not be mixed with objects once used as weapons. Collections managers review accessibility issues, such as where objects are stored and how they are managed. Conservators are concerned with the objects' stability and examine options for ensuring their safe, appropriate transferal.

Clothed in white gloves and lab coats and armed with flashlights and thick stacks of inventory sheets, the prep team began its long process. Its first assignment was the Pacific Research Laboratory (PRL), the largest anthropology collections room. From day one, the team encountered artifacts that simply made them say "wow." They have inventoried 12,000 spears, 1,000 paddles, 500 shields, 500 masks, 8,000 textiles, 900 bowls, 525 necklaces, 450 knives and 28,000 other objects of varying type. They have also updated 16,800 catalog records in the database. And that's just one room!

The artifacts are then transferred to a workroom for any necessary cleaning, re-housing, cataloging or stabilizing. To date, this has been the most visible part

of the process. The team can be seen caravanning through the Museum on a daily basis, their carts laden with everything from hair combs to war clubs.

In order for the geology department to move large storage cabinets and heavy specimens, an old elevator needed to be expanded and modernized. This required serious demolition to widen the elevator shaft and complete related construction projects. Once these projects are finished, transporting the geological specimens and reusable cabinets into the CRC will be fairly straightforward.

The zoology department will be consolidating its irreplaceable alcohol collections, now spread throughout the main building, into the CRC. Fishes comprise the greatest percentage of what's moving—some 8,000 shelves of more than 120,000 jars—followed by reptiles and amphibians. Picture a typical bay three feet wide that is packed, or in some places double stacked, with jars of all sizes. It's a tremendous effort to clean the glass and replace old jars, lids and

gaskets. Many steel tanks require maintenance, and the skeletal collections will be inspected for pests. These research specimens, including cleared and stained specimens, tissue samples and DNA, and dry-stored specimens (skeletons, shells, skins) will be inventoried and updated in the collections database. The actual moving logistics are still being addressed: Since specimen jars are sensitive to vibration and are filled with alcohol, the department will need to purchase special carts and construct padding units to ensure the jars' secure travel. Move routes through the public areas are still being determined.

Processing the collections has reinvigorated the Museum's scientific work and our imaginations. It has also acquainted a new generation of staff with our spectacular array of objects and specimens. Though sometimes piercing through dust and darkness, we are swiftly moving forward in great anticipation of the CRC. **ITF**



JOHN WEINSTEIN/294166.5CC

Fishes are the zoology department's largest collection moving to the CRC.

Corporations Joining Museum to Explore the Earth Together

What does the ideal corporate membership program at a cultural institution look like? Rather than exploring that question from our viewpoint, we asked corporations what they wanted.



MARK WIDHALM/69604.090

A corporate membership to The Field Museum includes private behind-the-scenes tours.

We learned that businesses want a program that includes benefits they can use. One that is easy to administer, offers a range of benefits for adults and children and helps create a strong feel-good connection for their employees. The Field Museum's new Corporate Relations Program, officially launched in January, is designed to address these needs.

Our program offers membership levels starting at \$5,000 and has attractive benefits that include:

- guest passes
- free admission for employees
- a corporate family day
- a private behind-the-scenes tour
- executive memberships

Each benefit was carefully chosen to help corporations develop a closer relationship with one of the world's greatest cultural and scientific museums. Since corporate memberships provide essential unrestricted support, businesses that join are helping to ensure the Museum's continued scientific and educational growth while demonstrating their commitment to Chicago and the global community.

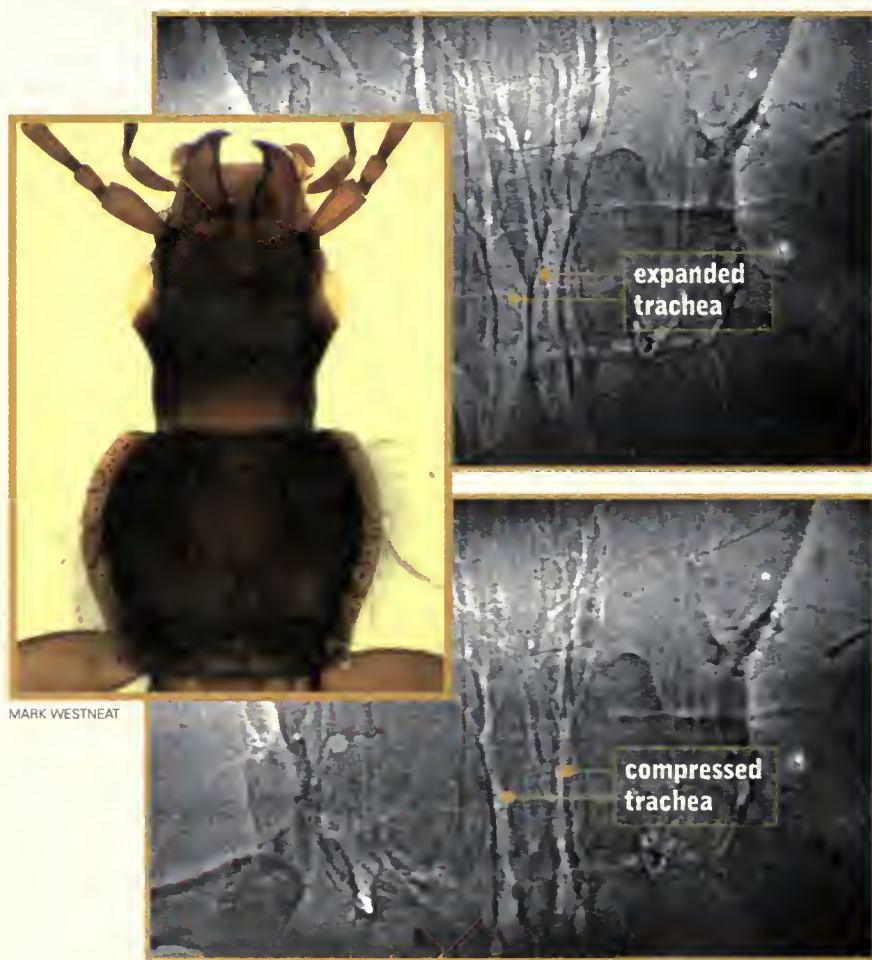
For information about joining the Corporate Relations Program, call 312.665.7120.

Researchers Exhale Sigh of Wonder Over Insect Breathing Mechanisms

Greg Borzo, Media Manager, Academic Affairs

Editor's note: From the Archives was replaced with this late-breaking news.

It's like the 1989 Disney fantasy *Honey, I Shrunk the Kids*, but in reverse. Instead of an electromagnetic shrinking machine condensing kids to one-quarter inch, the synchrotron, which emits x-rays 1 billion times more powerful than a medical x-ray, is revealing tiny bug mechanics in astonishing detail. Closing a 2,300-year-old debate about how bugs take in air, scientists have discovered a breathing mechanism that is analogous to lung ventilation in humans.



MARK WESTNEAT

An x-ray revealed compression and expansion of the tracheal tubes in this ground beetle, *Platynus decentis*.

"This discovery could revolutionize the field of insect physiology," said Mark Westneat, associate curator of zoology at The Field Museum and lead author of the study published on Jan. 24 in *Science* magazine.

Insects don't have lungs. While scientists long believed that air simply wafted in and out of small openings on insects' bodies, they only recently learned that insects exchange oxygen through slow, passive mechanisms, such as moving their abdomens to force extra air into these holes.

This study further demonstrates that beetles, crickets, ants, butterflies and other insects also actively compress and expand their tracheae in the head and thorax. The three species most closely studied—the

ground beetle, house cricket and carpenter ant—squeeze out about 50 percent of the air in their main tracheal tubes approximately every second, roughly equivalent to a runner on a mild jog.

Promising new technique

Argonne National Laboratory near Lamont, Illinois, owns the synchrotron, called the Advanced Photon Source. With a circumference of more than a half mile, it accelerates electrons almost to the speed of light. With synchrotron radiation, structures that once baffled researchers can now be analyzed precisely.

"This is the first time anyone has applied this technology to study living insects," said co-author Wah-Keat Lee, a physicist at Argonne.

Lee and his colleagues had examined proteins, metals and chemical sprays with the synchrotron, but never an animal. Coincidence drew them to a dead ant on the floor, and what they saw astounded them. Lee searched the Internet for a biologist who might be interested, and he and Field Museum scientists have been working together ever since.

Edge enhancement, which highlights the edges of some internal organs, is one aspect that makes the videos so revealing. "It's almost as if parts of the anatomy have been outlined in pencil, like a drawing in a coloring book," Lee explained.

This work opens up new possibilities for studying how living animals function, which can have broad implications. For example, active tracheal breathing among insects may have played an important role in the evolution of terrestrial locomotion and flight, and be a prerequisite for delivering oxygen to complex sensory systems and the brain, the authors said.

"Basic principles of mammal, fish or insect physiology and function could also have important implications for human health care," Westneat said. For example, studying how larval fish move their backbones could shed light on how to treat spinal chord injuries in humans. Likewise, studying the walls of blood vessels in mice and the tiny hearts in beetles (each beetle has eight to 10 hearts) could give us clues about how to treat high blood pressure. **ITF**

Eternal Egypt Private Viewings

See magnificent treasures from 3,000 years of ancient Egypt in *Eternal Egypt: Masterworks of Ancient Art From The British Museum*.

Annual Fund Preview and Reception

April 23, 6:30 to 9:30pm. For donors who contribute \$250 or more. Includes a lecture. Invitation coming soon. Reservations will be required. Call 312.665.7714 for information.

Membership Previews

April 24, 9am to 10pm, and April 27, 30, May 1 and 4, 5 to 10pm. Invitation coming soon. Reservations will be required. Call 312.665.7700 for information.



52nd Annual Members' Nights on June 4, 5 and 6

- Explore areas of our vast collections that normally are closed to the public.
- Meet our anthropologists, botanists, geologists and zoologists.
- Celebrate music and dance from various cultures.
- See where our exhibitions are developed.
- Participate in special activities and presentations.

Your invitation and details about tickets, guest passes, parking and more will arrive soon.

Two Great Ways to Get Home Field Advantage

1. Special Packages

With wonderful amenities, great locations and a range of budget options, several Chicago-area hotels are offering special packages and tickets for *Baseball As America*. Check www.fieldmuseum.org/baseball for details.

Chicago's Essex Inn

800.621.6909

The Fairmont Chicago

800.441.1414

Hotel 71

312.346.7100

Swissôtel Chicago

888.737.9477

Days Inn Lincoln Park North

773.525.7010

Four Seasons Hotel Chicago

312.280.8400

Hyatt Regency McCormick Place

312.567.1234

Tremont Hotel Chicago

312.751.1900

Fairfield Inn and Suites

312.787.3777

Holiday Inn Chicago City Centre

312.787.6100

Park Hyatt Chicago

312.335.1234

Whitehall Hotel

312.944.6300

2. Special Group Offer

Receive half-price tickets to a White Sox home game when you purchase 15 or more tickets to *Baseball As America*! For maximum flexibility, use them any day or as individual tickets. Call 312.665.7300. Some restrictions apply.

Annual Fund Donor Appreciation Night

Thanks to all annual fund donors who attended the donor appreciation night in November. Guests visited *Chocolate, Pearls and Bamboo Masterworks*, as well as made caramel apples and met fellow donors. We look forward to welcoming new donors this year. Call 312.665.7777 or email annualfund@fmnh.org for information.



KIMBERLY MAZANEK/IGN00519.500

Field Museum Tours at a Glance

For prices and other information, call Field Museum Tours at 800.811.7244 or email fmtours@sover.net.

Empires of Indochina: Cambodia, Vietnam and Laos

Oct. 6–27, 2003 (wait-listed)

Leader: Ben Bronson, TFM curator
of Asian anthropology



Discover ancient temples, vibrant cities, outstanding museum collections, special performances and splendid landscapes of Cambodia, Vietnam and Laos. Highlights include Cambodia's incomparable Angkor Wat; Vietnam's Giac Lam and Emperor of Jade pagodas; Hue's Royal Tombs of the Nguyen emperors; the Marble Mountains; Hanoi's One Pillar Pagoda; Laos' Wat Phra Keo, Wat Si Saket and Wat Ong Tu; and the Pak Ou Buddhist Caves.

Egypt Revisited

Oct. 18–Nov. 1, 2003

Leader: Tarek Swelim,
art historian and past
FM Tours leader

For those who wish to explore Egypt in greater depth. See temples along Lake Nasser's shore. On one of the two days possible each year, witness the rising sun shining into Abu Simbel to illuminate the statues within. Visit Khufu's great pyramid and surrounding mastabas, and the Red and Bent Pyramids of Snofru. Other temples include Karnak (including an after-dark visit), Seti, Ramesses II and Hathor, one of Egypt's best-preserved temples.



COURTESY FM TOURS



Egyptian Odyssey

Nov. 8–22, 2003, or Feb. 7–21, 2004

Leaders: Tarek Swelim, art historian
(Nov.) and Thomas Mudloff, TFM lecturer
and instructor of Egyptology (Feb.)

A popular in-depth introduction to ancient pharaohs and medieval Islam. In Cairo, we tour the outstanding Egyptian Museum, Great Pyramids and Sphinx, the famed step pyramid of Zoser and Old Cairo. At Luxor, explore the vast temple complex of Karnak and the stunning tombs of the Valleys of the Kings and Queens. Cruise the legendary Nile aboard a luxurious riverboat from Luxor to Aswan, stopping to visit the Temples of Khnum, Horus and Isis. The climax is Abu Simbel's extraordinary three colossi of Ramesses II.

Tanzania Migration Safari

February 2004

Leaders: Bill Stanley and Mary Anne
Rogers, TFM zoologists

Our classic Tanzania safari takes members to the Serengeti, Ngorongoro Crater, Lake Manyara, Arusha National Park and Olduvai Gorge. One highlight is four days witnessing hundreds of thousands of plains animals gather for their massive migration.

Behind the Scenes in Moscow and St. Petersburg

May 9–18, 2004

Following the success of The Field Museum's special exhibition *Kremlin Gold*, donors are invited to join this "insiders' trip" in which Russian curators will show you priceless art and jewelry. Stay at the best hotels, and enjoy the finest restaurants and performances.

IN THE FIELD

Summer
2003
June–August

The Field Museum's Member Publication

New Lab Explores
Early Solar System
Clash of the Andean Titans

An Urban Connection



JOHN WEINSTEIN / GNB8119.6

What better place for The Field Museum to explore cultural diversity than in Chicago. We all deal with the stuff of life—finding food and shelter, building relationships, defining ourselves—but each of us responds to these concerns in different ways. Through our Center for Cultural Understanding and Change (CCUC), The Field Museum is involved in several projects to understand such diversity and strengthen the connections among Chicago's ethnic groups and neighborhoods.

Bethel New Life (BNL), a community-driven development corporation on Chicago's west side, is creating an exhibition geared toward teens that is inspired by our Living Together exhibition. Culled from the powerful personal stories of community members, *Steppin' Up: Journeys from the Soul* will explore how we can all make positive choices in turning hard times into healthy, viable learning opportunities. We are participating in fundraising, educational programming, public relations/marketing and advising on *Steppin' Up*, which opens this fall at BNL.

With generous support from the Ford Foundation, CCUC has also recently formed the Urban Research and Curriculum Transformation Institute to stimulate relationships between the Museum and local universities and organizations. Students are paired up with community groups to research issues affecting their neighborhoods. One recent project, for example, studied how

urban gardens inspire cooperation in addition to beautify a neighborhood. Students' research results are then funneled back to the community groups to enhance their efforts. University faculty members are also better able to weave immersive, hands-on research practices into their curriculums.

Hip hop, a blend of music, fashion and a special worldview, is influenced by a variety of cultural and artistic styles around the world. From Oct. 3 through 5, CCUC is hosting a conference for hip hop practitioners, community activists and scholars. It will focus on hip hop's impact internationally. See pages 4–5 for a related article.

CCUC's Cultural Connections program has grown from eight partners in 1998 to 21 partners today. It doesn't just celebrate cultural differences; it explains them. By bringing together ethnic museums and centers, such as the Cambodian Association of Illinois and the Institute of Puerto Rican Arts and Culture, a joint program might explore various wedding traditions or how masks and storytelling play different entertainment and religious roles. While The Field Museum provided the initial framework for other groups to gather, the flip side is that we learn more about what's happening in Chicago, informing our own widespread efforts. The 2003–2004 program on rites of passage will kick off on Sept. 11.

With the Diversity Project, we partner with Chicagoland families, schools, churches and community organizations to provide complimentary access to the Museum and its

programs. More than 1,000 children and adults from such groups as the Better Boys Foundation and the North Lawndale/Logan Square YMCA have enjoyed overnight stays, lectures, festivals, special exhibitions and summer camp free of charge. The Diversity Project is helping Chicago's underserved communities feel more comfortable here, thereby encouraging them to return again and again. It is made possible by the National Recreation Foundation and supported in part by Kraft Foods and The William Randolph Hearst Foundations.

Finally, 15 Latino high school students will be rebuilding the Museum's employee intranet this summer in a paid internship through HiTech, a partnership between the Illinois Coalition and the U.S. Hispanic Leadership Institute. Training in a state-of-the-art computer lab at the Erie Neighborhood House, the students will be immersed in a real-world environment of teamwork, project planning and development, deadlines and working with a client. While we gain a tangible benefit, the students acquire relevant skills for college and a career in technology.

These programs turn the work of our anthropologists and educators inside out. We hope Chicagoans learn more about each other while uniting their new understanding with the context of their own lives.

John W. McCarter, Jr.

John W. McCarter, Jr.
President & CEO

Through our Diversity Project, families such as the Lindseys enjoy complimentary access to the Museum and its programs.



MARK WIDHALM / GNB9052.1.6D

What do you think about In the Field?

For general membership inquiries, including address changes, call 312.665.7700. For questions about the magazine *In the Field*, call 312.665.7115, email acranch@fmnh.org, or write Amy E. Cranch, Editor, The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496.


INTHEFIELD INSIDE

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Cover: Ghost Head Nebula, a star-forming region within the Large Magellanic Cloud in our local group of galaxies. The beginnings of our own solar system likely took place in an environment like this one. Photo courtesy NASA, ESA and Mohammad Heydari-Malayeri (Observatoire de Paris, France).

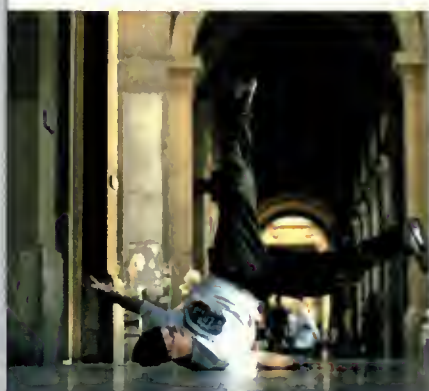
The Field Museum salutes the people of Chicago for their long-standing, generous support of the Museum through the Chicago Park District.

The Field Museum

1400 South Lake Shore Drive
Chicago, IL 60605-2496
312.922.9410
www.fieldmuseum.org



MEENAKSHI MADHWA



MICHAEL SIMBORG/WANDERLIFE



EDWARD SHERIFF CURTIS

2

A new Field Museum lab is helping geochemists understand our early solar system. *Top: Rebekah Hines, collections assistant, working in the ultra-clean lab.*

4

Hip hop, a culture blending music, fashion and a special worldview, is capturing audiences around the globe.

Middle: Break-dancing is a vital element of this expressive culture.

6

The Field Museum library and Oppenheimer Editions are offering superb replications of early natural history art.

Bottom: At the Old Well of Acoma, by Edward Sheriff Curtis.

16

Recent research atop a majestic mountain in Peru has revealed startling insights into how two great superpowers interacted between AD 600 and 1000.

Museum Campus Neighbors

Shedd Aquarium Shedd Aquarium's newest exhibit, *Wild Reef*—Sharks at Shedd, is now open. Descend into the shimmering underwater communities of a Philippine reef, the most diverse marine ecosystem on Earth. Be dazzled by a kaleidoscope of live corals and schooling reef fishes, and come face-to-face with one of the most diverse collections of sharks in North America. For more information, visit www.sheddaquarium.org, or call 312.939.2438.

Adler Planetarium It's an alien invasion! Travel to imaginary worlds to encounter fantastic alien life forms, or search for new worlds outside our solar system in two new Sky Theater shows. Beginning June 28, venture into a new temporary exhibition and family activity center, or enter cyber space to explore the possibilities of life beyond planet Earth. For information call 312.922.STAR, or log onto www.adlerplanetarium.org.

Museum Campus See page 19 for an article about parking and travel projects coming to completion that will ultimately mean easier, safer access to Museum Campus.

New Lab Helps Field Museum Geologists Explore Early Solar System

C. Nicole Foley, PhD, Postdoctoral Geochemist, Meteorites

Inside the mass spectrometer, where it gets as hot as the Sun's surface. The instrument is used to analyze meteorites.

Collapsing under the force of gravity, our solar system formed from a luminous cloud of gas and dust that was seeded with material from the surrounding dying stars. That was 4.56 billion years ago, and while the subject of our solar system's origin has intrigued humanity for thousands of years, it's only recently that technologic advances have allowed us to study it with extremely high resolution. The Field Museum has one of the world's preeminent meteorite collections with more than 1,300 specimens, including pieces of the Moon, Mars and many asteroids. Meteorites are the texts of early history, yet they contain subtle variations in their chemical and isotopic makeup that require complex tools to read. The Field Museum's new state-of-the-art Isotope Geochemistry Lab (IGL) enables our geologists to read these texts in precise detail and make discoveries that are literally out of this world.

A one-of-a-kind laboratory

Dr. Meenakshi Wadhwa, associate curator of meteorites, founded and directs the IGL, which is used to address fundamental questions about our solar system. It's the first and only laboratory of its kind in a U.S. museum, highlighting the Field's commitment to keeping up with developments in research. In the IGL, researchers are analyzing meteorites and terrestrial samples to determine precise dates and identify fingerprints of cosmologic and geologic processes. They are generating age dates that are precise within a million years for events that occurred billions of years ago.

Encompassing about 1,000 sq. ft., the IGL consists of two separate areas—the ultra-clean sample preparation lab and the mass spectrometer lab. Because the rooms are equipped with highly sophisticated, sensitive instruments, there are strict protocols for access, maintenance, safety and usage. For example, everyone entering the ultra-clean lab must first go into an air-locked vestibule, don a

white suit from head to toe and step on a series of sticky mats that remove dirt from shoes. Inside, the IGL is meticulously maintained by Dr. Philip Janney, IGL manager, and Rebekah Hines, collections assistant. Its air supply is fed through a series of filters, and the pressure and temperature are maintained at a constant level to minimize contamination and maximize the ability to measure trace amounts of elements in meteorite samples.

Samples processed in the ultra-clean lab are then analyzed in the mass spectrometer lab. The mass spectrometer uses argon plasma—nearly as hot as the surface of the Sun—to strip electrons off of a sample's atoms. The charged ions that form are then separated by a powerful electromagnet into isotopes, which are atoms of the same chemical element that have different numbers of neutrons. The abundances of the isotopes of a particular element of interest are then measured by a series of detectors. In this way, we measure how much of a given isotope was produced by radioactive decay and thus determine the age of a sample.



Dr. Philip Janney isolates elements with column chromatography before analyzing a sample in the mass spectrometer.

Research projects address grand questions

What was our solar system's early environment like? How long did it take to build the terrestrial planets? What heat sources contributed to melting and differentiating the planets in early history? How much of this heat came from short-lived radioactive elements that gave off energy as they decayed? These are some of the questions being addressed by research in the IGL.

Many meteorites show that their parent asteroids suffered extensive melting early in the solar system's history. It is likely that much of the heat required for this came from the decay of short-lived radioactive isotopes. One research project is aiming to understand how much aluminum-26, a high heat-producing isotope, existed in the early solar system, and how it assisted planetary melting. Toward this goal, Dr. Wadhwa is analyzing several ancient meteorites that are thought to have come from melted asteroids.

We are also researching when core formation happened on the terrestrial planets. Both Earth and Mars have metal cores that are approximately half their radii. When did this metal separate and sink to the center of each planet? Fortunately, another short-lived radioactive isotope, hafnium-182, acts as a highly precise chronometer, or radioactive clock, for this metal-separation event. We have utilized it to date the timing of core formation for Earth and Mars. Working with Dr. Wadhwa and Dr. Janney, I have confirmed that Earth's core formed in less than 33 million years following the birth of the solar system, and Mars' core formed in the first 13 million years. These estimates are much earlier than those from previous studies.

Finally, Dr. Frank Richter, a University of Chicago professor and Field Museum research associate, is characterizing the environment of the early solar system. Using a high-temperature vacuum furnace, he is evaporating materials that are similar in composition to the first-formed solids in the solar system. Working with Dr. Wadhwa and Dr. Janney in the IGL, Dr. Richter measured the chemical

and isotopic properties of the evaporation residues in his experiments. They have found that calcium- and aluminum-rich inclusions (CAIs), the oldest-formed materials in ancient meteorites, were intensely heated and then cooled rapidly—within days.

Reaching further out and closer in

Other upcoming IGL projects will span from as far away as Mars and the Sun to as close as Park Forest, Ill. Dr. Wadhwa is part of a team that could be selected by NASA to bring back Martian dust within the next decade. If such samples are returned, they could reveal important aspects of Mars' geologic and climatic evolution. Two NASA spacecraft are currently collecting samples of comet dust and solar wind, energetic particles streaming from the Sun, which will also likely be analyzed in the IGL. And nearby, we have obtained portions of a meteorite that landed in Park Forest this past March, now on temporary display in the Grainger Gallery, that may also be analyzed in the near future.

Opening the IGL is a momentous achievement for The Field Museum and for the scientific community and the world. Using the strength of the IGL and our own meteorite collections, our researchers are uncovering secrets to how our solar system formed and evolved. This facility is enabling us to touch upon our origins in an extraordinary way. **ITF**

Allende, one of the oldest, most primitive rocks in the solar system, shows calcium- and aluminum-rich inclusions (CAIs), the very first solid materials to have formed.



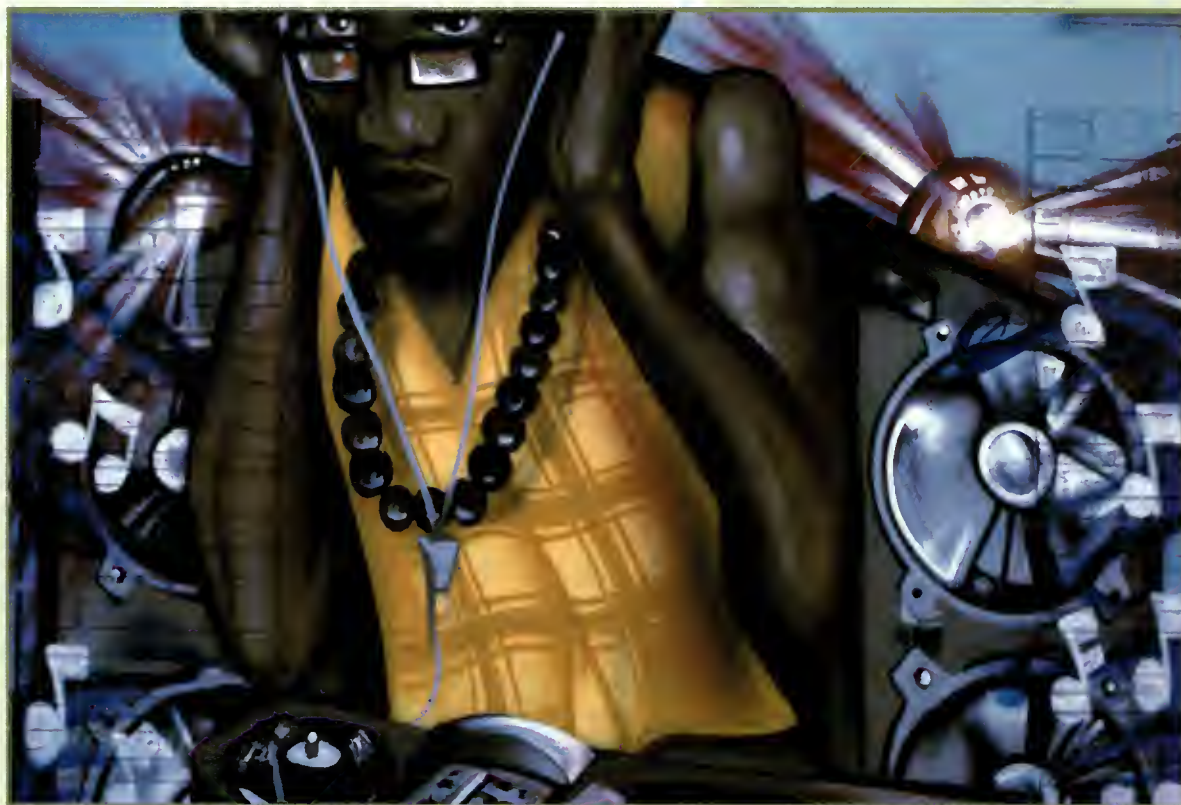
C. NICOLE FOLEY

Left: Dr. Meenakshi Wadhwa examines meteorite fragments that recently fell in Park Forest, Ill. Right: Dr. Nicole Foley operates the mass spectrometer.



A Global Lingua Franca: Hip Hop Culture Rises Worldwide

*Raymond Codrington, Sandy Boyd Postdoctoral Fellow, Center for Cultural Understanding and Change
All photos ©Michael Simborg/Wandereye*



You can find it in the most unexpected corners of the globe. The Grand Theatre of Havana. A barber shop in South London. An ivy-league university classroom. Hip hop, a cultural blend of music, fashion and a special worldview, takes its influences from an assortment of styles, from jazz and soul to head-nodding funk and from the driving beats of an African drum to the sharp edges of an urban poet.

In the past 25 years hip hop has become one of the most influential forms of culture. In 2000, hip hop music claimed 13 percent of the \$14 billion profit in the U.S. recording industry, outselling both pop and country music, according to the Recording Industry Association of America's consumer profile. While conventional wisdom indicated that hip hop would fade into obscurity, it is a cultural and commercial force that is mushrooming, capturing a variety of audiences from the urban to the suburban, the local to the global, the academic to the popular.

Hip hop culture comes into its own

Sometimes it's easier to understand what something is by defining what it's not. Hip hop is not only rap music. It is an amalgamation of expressions that grew out of the South Bronx, New York, in the mid 1970s among working-class African-American, West Indian and Latino youth. In many cases, these

youth chose artistic competition over physical confrontation, blending cultural, social and technological elements from their backgrounds to create a new culture. This culture revolves around four primary elements: rap, the vocal element, is rhyming to the beat of the music; deejaying involves playing and manipulating records; graffiti, or aerosol art, is the visual element; and b-boying or b-girling, otherwise known as break-dancing, encompasses a range of performance styles, such as the smooth movements of Brazilian capoeira and the acrobatic agility of a gymnast.

Since rap is the most well known aspect of hip hop culture, the two terms are often conflated. But, in fact, hip hop also reflects a particular worldview that is highly influenced by its originators' lack of access to resources and their creative responses to these conditions. It is the voice of those who live in the margins, much like early reggae music was to

poor Jamaicans and early punk music was to working-class English youth. In a wider sense, hip hop is the quintessential American cultural product, incorporating such ideals as innovation, competition and representation.

Can't stop, won't stop

Hip hop did not stay in the Bronx for long. Graffiti traveled to Manhattan's art community through such artists as Keith Haring and Jean-Michel Basquiat. Rap music slowly crept into the radio play-lists and music store shelves. Youth everywhere began to break-dance, turn their parents' record players into turntables and paint public surfaces with graffiti art, whether the authorities liked it or not. *Wild Style* and *Style Wars*, two classic hip hop films, explore these early days of hip hop culture.

It's interesting to examine hip hop's evolution as a commercial force. Those who consider themselves the innovators and practitioners of the culture often think that hip hop has become too pervasive, being used to sell everything from candy to clothes to cars. They question whether this saturation increases its popularity by exposing it to a wider audience, or endangers the integrity of this distinguished urban culture.

Critics and fans alike often think that today's most popular and best-selling rappers glorify consumption and misogyny. But just as there are extremes in fashion, film and other artistic expressions, there is a diverse continuum of content and styles among hip hop artists. Some are exploring rock music on their albums, helping to promote mainstream acceptance of rap music and rethink the relationship between hip hop and other musical genres. "Conscious" rappers, such as Chicago's Common, All Natural, Mos Def and The Roots, address social concerns and sometimes critique or parody more commercial rap music. For example,

one Roots song, *What They Do* on the *Illadelph Halflife* album, encourages listeners to define their individuality while maintaining the artistic and cultural elements found in hip hop:

*Lost generation, fast-paced nation
World population confront their
frustration*

*The principles of true hip hop
have been forsaken*

*It's all contractual, and about
money making*

*Pretend-to-be cats don't seem to know their
limitations*

Exact replication and false representation

You wanna be a man, then stand your own

To mc requires skill, I demand some shown.

Going global

Visit countries as far-reaching as Senegal, France or Cuba and you will likely discover a unique hip hop culture. While rapping in its native language, each country adds elements of its own distinctive language, musical styles and issues: Hip hop culture has become the global lingua franca for social expression and critique. For example, London's Roots Manuva melds West Indian slang, called "patois," with his British-born accent to rap about topics ranging from recreation to politics. In France, the world's second largest hip hop market after the United States, artists such as IAM, NTM and Saïan Supa Crew rap about immigrant life. Cuba's Orishas mix traditional music and hip hop to address issues related to politics, identity and race.

The movement of hip hop beyond the United States marks its power as an art form and culture, as well as a medium for connecting communities across country lines, lifestyles and languages. **ITF**



*Break-dancers in
Florence, Italy, exhibit
strength and suppleness
in their acrobatic moves.*

Hip Hop and Social Change Conference

It cannot be denied that the boundaries of hip hop have shifted from the marginal to the mainstream.

This fall, The Field Museum's Center for Cultural Understanding and Change is hosting a conference called *Hip Hop and Social Change*. Drawing upon the knowledge and experience of hip hop artists, scholars and community members, the conference will offer a range of innovative subjects that primarily explore how hip hop can be used as a tool for transformation to address social and political issues, particularly those that affect youth. The conference is a testament not only to hip hop's breadth and significance, but also to the Museum's commitment to understanding contemporary culture and change.

The Hip Hop and Social Change Conference will take place Oct. 3–5 at The Field Museum. For information visit www.fieldmuseum.org, call 312.665.7547 or email drushemeza@fmnh.org.

Funding for the Hip Hop and Social Change Conference has been provided by the Rockefeller Foundation.



Faithful Reprints of Natural History Collectibles Now Available

Imagine a world before photography, before humans had explored the globe and discovered the plants and animals of distant places. The pinnacle of natural history art, spanning the 18th and 19th centuries, brought this new world to people who had no means for visualizing the phenomenal finds from an explosion in discovery and knowledge.

The natural sciences were a haphazard blend of mythology and observation before Linnaeus developed classification and Darwin conceived the theory of evolution. At this crucial juncture, artists were called upon as explorers and scientists to record discoveries, often sacrificing their health and finances to bring these images to an insulated world.

The Mary W. Runnells Rare Book Room in The Field Museum library contains a superb collection of these early prints, unsurpassed in its breadth and quality. Together with Oppenheimer Editions, LLC, we are now offering the 50 best from 11 collections as limited-edition facsimiles. Available as individuals, complete sets or at a patron-level subscription, these replications exactly match the original engravings and lithographs in size, color and paper quality. Super high-definition scans are made from the originals, and as many as 10 proofing stages are executed before a finished print is accepted. Nothing has been spared to guarantee their exceptional value.

All royalties from the sale of these prints will support the endowment for The Field Museum

library. Following are the collections from which you can choose to purchase:

- Audubon's birds
- Fuertes' Abyssinian expedition
- Audubon's mammals
- Napoleonic Description de L'Egypte
- Bury's hexandrian plants
- McKenney Hall Indian Gallery
- Barraband's parrots, toucans and birds of paradise
- Elliot's cats, pheasants and birds of paradise
- Catesby's Carolina, Florida and the Bahama Islands
- Lear's parrots, toucans and birds of Europe
- Curtis' North American Indians

In most cases, the originals are unattainable. The Oppenheimer Field Museum Editions will bring you back to a time when science and art were united.

Prices depend on what and how much you purchase. Special offers are available. For a complete Oppenheimer Field Museum Editions catalog, call 866.333.4846 or visit www.oppenheimereditions.com.

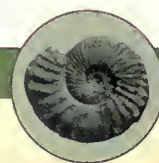
Sections of this text were taken from the Oppenheimer Field Museum Editions catalog.



YOURGUIDETO THE FIELD

Calendar of Events for Summer 2003 June–August

Inside: Exhibits Festivals Family Programs Adult Programs



An Evening With Bob Costas



Hear renowned broadcaster Bob Costas share his unflinching views on the state of major league baseball and propose realistic changes that would pro-

mote the game's best interests. An unabashed baseball fan, Costas has won 11 Emmy awards and been named the National Sportscaster of the Year eight times for his coverage of major sports events. His first book, *Fair Ball: A Fan's Case for Baseball*, offers an insightful, provocative and good-natured look at the top challenges facing our national pastime—from financial disparities between teams to off-the-chart player salaries and the designated-hitter rule.

Monday, June 30, 7pm
\$18, students/educators \$15,
members \$12



Final Weeks— Baseball As America

Through July 20, 2003

1. When did professional ball players wear skirts?
2. What famous ballplayer who broke social barriers wore this jersey?
3. How is Babe Ruth's Louisville Slugger different than Sammy Sosa's home-run hitting bat?

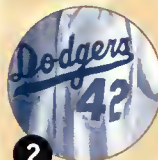
Discover the answers to these fun questions and more when you visit The Field Museum this summer.

Baseball As America is the first major exhibition to examine the relationship between baseball and our nation's culture. It is also the first time that cherished treasures of our national pastime have left The National Baseball Hall of Fame and Museum in Cooperstown, New York. With more than 500 of the Hall of Fame's most precious artifacts, this exhibition shows how baseball mirrors our nation's values, struggles, triumphs and aspirations.

You'll see the stuff of legends, including Jackie Robinson's jersey and Babe Ruth's bat. The exhibition also includes artifacts from the Negro Leagues, the All-American Girls Professional Baseball League and items of special interest to Chicago fans.

This exhibition was organized by The National Baseball Hall of Fame and Museum, Cooperstown, New York.

The national tour of *Baseball As America* is sponsored by Ernst & Young.



BASEBALL

★ AS AMERICA ★

PHOTOS COURTESY THE NATIONAL BASEBALL HALL OF FAME AND MUSEUM

The Field
Museum

General Museum Information: 312.922.9410

Family and Adult Program Tickets and Information: 312.665.7400

Enjoy the best that summer has to offer at The Field Museum.

ETERNAL EGYPT: MASTERWORKS OF ANCIENT ART FROM THE BRITISH MUSEUM

Through Aug. 10, 2003

See magnificent treasures from 3,000 years of ancient Egypt. Drawn from the most important collection of Egyptian art outside of Cairo, this epic exhibition reveals the secrets of one of the world's most enduring civilizations. You'll see 144 stunning artworks, including:

Nude Figure of the Seal Bearer Tjetji

This carved wood figure, beautifully supple and sophisticated in form, is at once naturalistic and symbolic.

Lion of Amenhotep III

This stately, life-sized red granite lion is a remarkable blend of abstraction and realism.

Head of Amenhotep III

This colossal quartzite head gazed downward from a great height, as befits a pharaoh who ruled from a position of strength and was determined to be seen as nothing less than a god.



Mummy Mask of Satdjehuty

This gorgeous mask belonged to a royal attendant who was given god-like golden flesh and lapis lazuli hair so that, like the sun god, she would be reborn each morning as the sun rises.



Book of the Dead, Papyrus of Ani

These colorful and delicate scrolls come from the most famous of all Egyptian illustrated texts—the funerary papyrus of a scribe named Ani.

This exhibition is organized by the American Federation of Arts and The British Museum.

The exhibition and its national tour are made possible by Ford Motor Company. Ford has also provided additional support for this venue.

The Chicago presentation is made possible through the generous support of LaSalle Bank. Additional support has been provided by the Benefactors Circle of the AFA.

DETAIL OF MUMMY MASK OF SATDJEHUTY AND BOOK OF THE DEAD © TRUSTEES OF THE BRITISH MUSEUM, COURTESY AFA

Sunken Heracleion: Between Reality and Legend

Speaker Event

Franck Goddio, Underwater Archaeologist and Author

Marvel at the incredible discoveries that famed underwater archaeologist Franck Goddio and his team have pulled from the sunken remains of Heracleion in Egypt's Bay of Aboukir. Due to a series of earthquakes, these fabled royal quarters were lost under the Mediterranean for more than 1,000 years before Goddio's research team located their ruins in the harbor of the modern-day city. Hear the latest update from Goddio's team of archaeologists, historians, geophysicists and divers.

Saturday, June 21, 2pm

\$12, students/educators \$10, members \$8



FRANCK GODDIO/HILLI FOUNDATION/Discovery Channel

During Your Visit

Take advantage of these free programs the whole family can enjoy the next time you visit The Field Museum.

Tibetan Sand Mandala

Witness seven Tibetan Buddhist monks create a sand mandala over four days. Millions of colored sand grains are painstakingly laid into a geometric pattern that represents a map to enlightenment. Once completed, the mandala is dismantled as a symbol of life's fleeting nature.

Thursday, June 12–Sunday, June 15, 11am–2pm

Story Time

Listen to a story and make an art project to take home—all in just 20 minutes! One adult for every three children please.

Saturday–Sunday 1:30pm; Daily during July and August.

Museum Highlight Tours

Enjoy a guided tour of some of the Museum's most popular, famous and unique exhibitions. Hear the stories behind these fascinating treasures from nature and human culture.

Monday–Friday 11am and 2pm; Saturday–Sunday 11am and 1pm

Northwest Coast Indians & Eskimos Tour

Discover a spectacular array of artifacts depicting two neighboring North American environments and cultures.

Wednesdays 11:30am and 1:30pm; Thursdays 11:30am

Maori Meeting House

Visit this stunning authentic house and learn about its cultural significance and use.

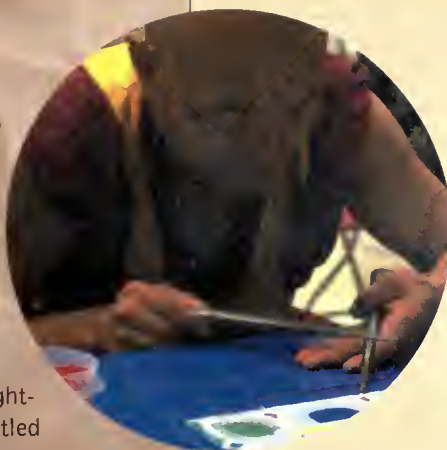
Weekdays 10am–3pm; Weekends 10am–4:30pm

Pawnee Earth Lodge

Join us around the fire pit of this full-sized replica to hear stories of buffalo hunts and examine tools, toys and blankets. Discover what life was like for the Pawnee on the Great Plains in the 1800s.

Monday–Friday at 1pm; Saturday and Sunday 10am–4:30pm

Note: The Pawnee Earth Lodge will close for construction beginning June 30.



JOHN WEINSTEIN/89353.32C

Explore the world with Field Museum scientists.

What is it like to unexpectedly uncover a tomb beneath the floor of an ancient house? Or to discover a new species living on the dark, unexplored ocean floor?

Find out through expeditions@field-museum.org, an exciting program that lets you join four Field Museum scientists a year as they travel the world to conduct research. Through regular emails and online video reports, expedition photos and interactive site maps on our website, you'll hear immediate first-hand accounts from Field Museum scientists about their experiences and challenges in the process of fieldwork and discovery.

Now through July 1, follow Dr. Gary Feinman's archaeological excavations of a hilltop residential center in Oaxaca, Mexico. Dr. Janet Voight is tentatively scheduled to dive to the depths of the Pacific Ocean this fall in ALVIN, a manned submersible, to explore life around hot, toxic seafloor habitats. And in October, join Bill Stanley as he follows a group of specimens step by step from the time they are prepared and catalogued in the Museum collections, to their use in scientific research, to what we learn from such specimens.

Email expeditions@fieldmuseum.org to register, or visit www.fieldmuseum.org/expeditions/introduction.html to register and see a schedule of upcoming events.



LINDA M. NICHOLAS



© RICHARD LUTZ / RUTGERS UNIVERSITY

Family Overnight

Dozin' With the Dinos

Sue the T. rex is having a sleepover! Join us for a night of family workshops, tours and performances. Explore ancient Egypt by flashlight, prowl an African savannah with man-eating lions and travel back in time to the Mesozoic Era. Then spread your sleeping bag amidst some of our most popular exhibitions. The event includes an evening snack and breakfast in the morning.

Families with children ages 6–12
5:45pm on Friday, June 27 until 9am on
Saturday, June 28
\$47 per person, members \$40



Lectures

Chasing the Panda

Michael Kiefer, Author

Follow the dramatic story of an American socialite and two young hunters who led a 1,500-mile expedition in 1936 through China's mountains to search for a giant panda. Their return to the United States with the first live panda ever to be seen sparked a "panda-monium," setting off a legacy of hunting that led to the species becoming endangered. Kiefer's book traces this daring adventure and the controversy that surrounded it.

Saturday, June 7, 1:30pm
\$12, students/educators \$10,
members \$8



Blue Frontier: Saving America's Living Seas

David Helvarg, Journalist and Author

Take an adventure-filled tour of America's last great wilderness—the vast oceans just off our coasts. From off-shore oil rigs to underwater science labs, Helvarg's book explores the impact of history, commerce and policy on marine life. You may have seen Helvarg's work in Smithsonian and Audubon magazines, or on The Discovery Channel. Come hear his impassioned call for a new approach to ocean stewardship.

Saturday, June 14, 2pm
\$12, students/educators \$10, members \$8



Below is a calendar of current and upcoming temporary exhibitions. Some dates may change. Visit our website at www.fieldmuseum.org or call 312.922.9410 as the date of your visit nears.

Baseball As America
 Through July 20, 2003

**Modern People, Traditional Path:
 Figurines From Cochiti Pueblo**
 Through August 10, 2003

Family Workshops

Behind-the-Scenes: Puppets and Masks

Brandon Olsen, TFM Anthropology Dept.

Journey behind the scenes at the Museum to see incredible puppets from Japan, Indonesia, China and other parts of the world. Learn about the fascinating traditions of shadow puppets, string puppets, large-scaled puppets, masks and more. Then make your own shadow puppet.

Families with children ages 7 and up
Friday, June 20, 6–8pm
\$15, members \$12



JOHN WEINSTEIN/GN90090.16C

An Evening with Zahi Hawass

Archaeologist and Egypt's Director of Pyramids Zahi Hawass will present on his research and recent findings.

Monday, June 9, 6:30pm
\$18, students/educators \$15, members \$12

Fieldtrips

Chicago Waterways

Dr. Irving Cutler, Professor Emeritus, Chicago State University

Cruise Chicago's waterways for a unique perspective on our metropolitan area. From Lake Michigan to the Cal Sag Channel to the Chicago River, you'll drift past 70 miles of scenery to explore the area's ecological, economic and historical development.

Saturday, June 7, 9am–5pm, \$50, members \$43
Participants meet at the Wendella Boat Dock on Michigan Ave.

The Two of Us

Travel the Museum's exhibition halls, hear stories, touch objects, make art projects and enjoy snacks. This summer we'll learn about butterflies and masks from around the world.

Families with children ages 3–5
Tuesdays, August 5 and 12
10–11:30am or 1:30–3pm (Choose one time.)
\$24 per child, \$20 per member child
For each child, one adult attends at no charge.



ROBERT CURTIS/THE EARLY BIRDER

Exploring the Biodiversity of Lake Calumet

Dr. Doug Stotz, TFM Dept. of Environmental and Conservation Programs

Take a journey into the wilderness—only 30 minutes from Chicago! Nestled amidst the factories of a heavily industrialized landscape, Lake Calumet is also home to rare plants and animals that survive in prairie, wetland and woodland fragments. Discover these natural wonders and learn about The Field Museum's research and conservation activities. Then travel to the South East Chicago Historical Society to explore the cultural heritage of this area. Bring your binoculars; we're likely to see some birds in the early morning.

Saturday, June 14, 8am–3pm, \$50, members \$43

Eternal Egypt: Masterworks of Ancient Art
From The British Museum
Through August 10, 2003

Eviction and Homecoming:
The Story of Brazil's Panará Indians
September 12, 2003–February 8, 2004

Summer Camp

Summer Worlds Tour 2003

Don't miss the exciting and unique summer camp organized collectively by The Field Museum, Adler Planetarium and Shedd Aquarium. Examine Egyptian hieroglyphs, meet sharks from tropical waters and investigate the possibilities of life in outer space. This summer camp is as educational as it is fun!

Children ages 5–10 years old

Weekdays, 8:30am–3pm

Choose from one of four week-long sessions:

July 7–11, July 14–18, July 21–25, July 28–Aug. 1

Register through the Adler Planetarium at 312.322.0329

or www.adlerplanetarium.org/camp.

\$220 per child, members \$200

JOHN WEINSTEINGR0252.4AC



Fossil Collecting at Larson Quarry

David Dolak, Science Institute, Columbia College

Reconstruct what Illinois was like 425 million years ago, when a shallow, subtropical sea covered the area. You'll learn about the organisms that lived in this ancient environment and discover techniques for finding the fossils that time left behind. With its wonderfully preserved brachiopods and trilobites, Larson Quarry promises to be exhilarating! This is an adults-only trip. Space is limited.

Saturday, June 21, 7am–2pm

\$48, members \$41



Behind-the-Scenes

International Puppets: Artistry & Tradition

Brandon Olsen, TFM Anthropology Dept.

Enjoy a rare opportunity to see the incredible puppets and masks in the Museum's anthropology collections. You'll see beautiful puppets from Japan, Indonesia, China and other parts of the world. Discover the amazing artistry and diversity of techniques found in these works, and learn about puppetry traditions around the world.

Saturday, June 21, 10am–noon

\$15, members \$12



WILLIAM BURLINGHAM

The Field Museum salutes the people of Chicago for their long-standing, generous support of the Museum through the Chicago Park District. In addition, Museum programs are partially supported by the Illinois Department of Natural Resources and Illinois State Museum; by the Institute of Museum and Library Services, a federal agency; by the Illinois Arts Council, a state agency; and by a CityArts Program 4 Grant from the City of Chicago Department of Cultural Affairs.

Einstein

October 17, 2003–January 5, 2004

50 Years of Powwow in Chicago

July 25, 2003–January 18, 2004

Don't miss these exciting programs and exhibitions this fall.



Centennial Tribute to Louis Leakey



In honor of 100 years since legendary anthropologist Louis Leakey (1903–1972) was born, the Leakey Foundation will host a weekend program featuring an all-star cast of human origins and evolution experts. Richard, Meave and Louise Leakey will lead remembrances and presentations. Attend discussions, hands-on demonstrations and other activities that explore such topics as the great apes, human migration, a Neandertal's diet and comparing hominid casts. Visit www.leakeyfoundation.org for information.

Friday and Saturday, Oct. 10 and 11

Weekend pass: \$250. Includes keynote address, private reception, Saturday lunch and more. On sale June 1.

Saturday sessions only: \$40, TFM and Leakey Foundation members \$35. On sale Aug. 1.

Presented by the Leakey Foundation in collaboration with The Field Museum.

Einstein

Oct. 17, 2003–Jan. 5, 2004

See the world through the eyes of a genius. Einstein had the daring imagination and passionate vision to change how we look at our universe. Meet the man behind the revolutionary theories through photographs, personal possessions, letters, original manuscripts and multimedia displays. Delve into Einstein's personal life, explore his humanitarian ideals and understand his groundbreaking work. Also watch for details on a related lecture series that will examine brain research, black holes, the theory of relativity and more.

Einstein is a specially ticketed exhibition.

Einstein is organized by the American Museum of Natural History, New York; The Hebrew University of Jerusalem; and the Skirball Cultural Center, Los Angeles. Einstein is made possible through the generous support of Jack and Susan Rudin and the Skirball Foundation, and of the Corporate Tour Sponsor, TIAA-CREF.



COURTESY OF THE ARCHIVES, CALIFORNIA INSTITUTE OF TECHNOLOGY

Year of Biodiversity and Conservation

Explore The Field Museum's contributions to biodiversity science. From September 2003 through May 2004, The Field Museum's Year of Biodiversity and Conservation will offer exclusive opportunities to meet our scientists, hear lectures, visit special exhibitions and participate in educational programs that feature our science in service to the Earth and its inhabitants. Each month we will highlight a different theme, bringing important perspectives to some of the most provocative and pressing environmental topics of our time.

Hip Hop and Social Change Conference

Join a cross-cultural dialogue among hip hop practitioners, community activists and scholars that will focus on the social, artistic and political power that hip hop has in the United States and internationally.

Friday–Sunday, Oct. 3–5

Traditions of Transition

This year, the Cultural Connections program will focus on rites of passage that mark important life transitions, such as a wedding, naming ceremony, birth or death. Explore these different rituals at Chicago's diverse cultural institutions. Call 312.665.7474 or visit www.fieldmuseum.org for information.

Explore the art and celebrations of two unique communities.

Modern People, Traditional Path: Figurines From Cochiti Pueblo

Through Aug. 10, 2003

Enjoy the playful social commentary of artists who are blending contemporary American culture with a traditional art form. See clay sculptures of bikers, tourists and celebrities made by Cochiti potters, who are especially known for their "storyteller" figurines of women with children on their laps. This exhibition focuses on the unique pottery of the Ortiz family, whose sculptures are whimsical and insightful reflections of modern-day life.



50 Years of Powwow in Chicago

July 25, 2003–Jan. 18, 2004

Explore a vibrant celebration that helps keep Native American cultures alive in today's urban world. Dynamic photographs show the energy and excitement of Chicago's annual Powwow, which attracts Native Americans from across the United States to celebrate traditions and pass their culture on to the next generation. See the drummers, singers, craftspeople and other community members that create this unique event.

50 Years of Powwow in Chicago is presented by The Field Museum in collaboration with the American Indian Center.



COURTESY AMERICAN INDIAN CENTER

JOHN WEINSTEIN/A114195.01D

Visitor Information



Getting Here: With construction under way at nearby Soldier Field, your usual route to The Field Museum may have changed. Visit www.fieldmuseum.org for the latest information on parking, free trolleys and public transit.

Hours: 9am–5pm daily. Last admission at 4pm.

To get tickets: Baseball As America and Eternal Egypt are specially ticketed exhibitions. Member passes can be reserved in advance by calling Ticketmaster at 312.902.1500 (service charges apply) or coming to the membership desk near the Museum's south entrance (no service charges). Non-member tickets can also be reserved in advance through Ticketmaster or in person at the Museum's admission desks. Day-of tickets are available at the Museum while supplies last.

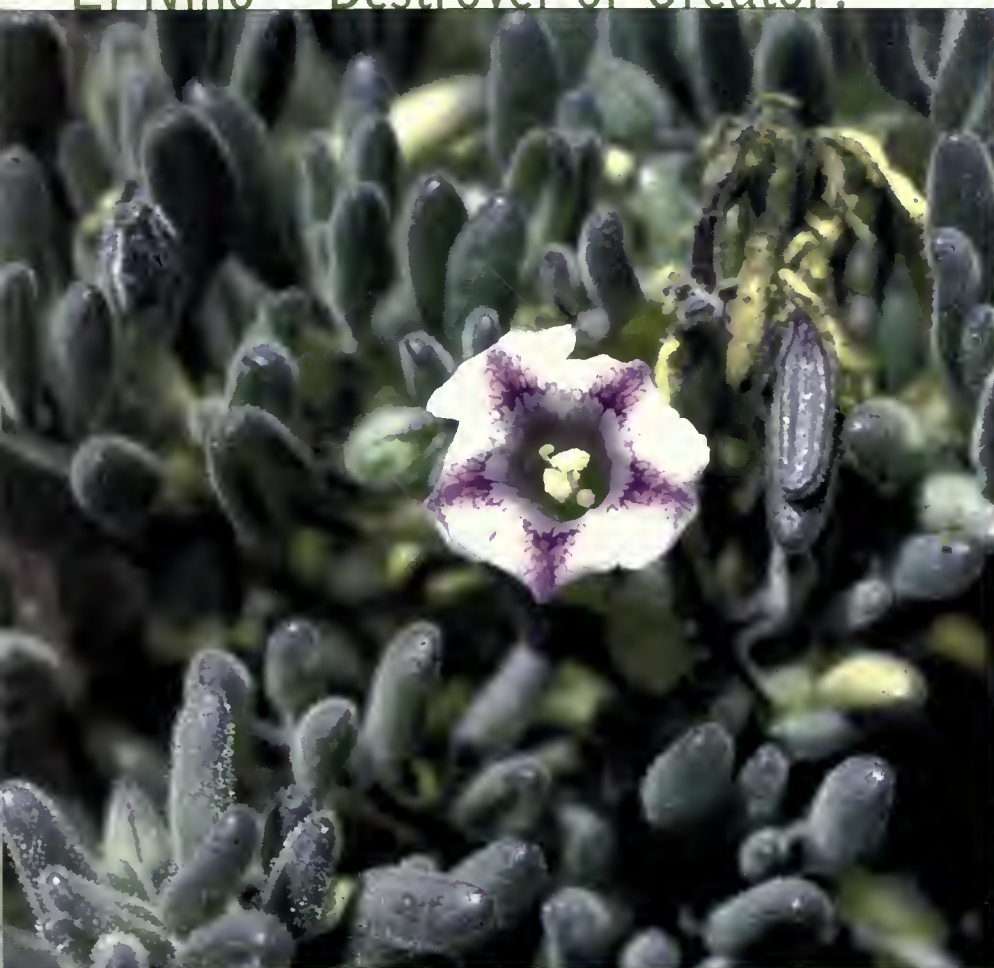
Accessibility: Visitors using wheelchairs or strollers may be dropped off at the west entrance. Handicapped parking and wheelchairs are available on a first-come, first-served basis. Call 312.665.7400 to check on the accessibility of programs that take place outside of the Museum.

Information: 312.922.9410 or www.fieldmuseum.org



JOHN WEINSTEIN/GB9448.36C

El Niño—Destroyer or Creator?



MICHAEL DILLON

To a scientist who studies flowering plants, flying over a normally barren desert on the west coast of Peru and seeing a fertile swath of color is a glorious moment. It's the rare occurrence that follows the knockout blows of El Niño, which occurs every seven to 11 years for minor events or about every 50 years for major events. The disastrous consequences of this rainy onslaught are well documented, from devastating floods to depleted fish and sea mammal communities. But what's less apparent is the plentitude El Niño can bring. Hidden seed banks lying in the desert explode after the rains, leaving a wake of flowers that can last up to several months.

*A Nolana flower (left).
The Peruvian desert
before and after El Niño
rains (right).*

The genus *Nolana*, shown above, only occurs in Peru and Chile, with one known species in the Galapagos Islands some 600 miles away. It has 84 known species, an extraordinary number in this hyper-arid region, where growth of any kind completely depends on sufficient moisture. What stimulated such evolution?

While it's unknown how long *Nolana*'s seeds can survive in the shriveled soil, it is certain that such floristic abundance and diversity simply wouldn't exist without these recurring rains. El Niño-related bursts of blooming recharge the region's seed banks and provide spurts of growth for long-lived perennials. In this sense, El Niño plays a pivotal role in plant evolution in one of the most parched places on Earth.

Michael Dillon, curator of vascular plants, chose this Scientist's Pick. He is attempting to reconstruct the evolution of *Nolana* using its DNA to determine when this El Niño-adapted genus in Peru diverged from its probable Chilean ancestors. Visit www.sacha.org for more information on Dillon's research.

Clash of the Andean Titans: Wari and Tiwanaku at Cerro Baúl

Patrick Ryan Williams, Assistant Curator, Archaeological Science, and
Donna J. Nash, Adjunct Curator, South American Archaeology



Between AD 600 and 1000, two great empires ruled the Andes—the Wari from mountainous central Peru, and the Tiwanaku from the windswept shores of Bolivia's Lake Titicaca. In only one place has evidence for direct confrontation been discovered, the Moquegua Valley of southern Peru. Here, the Wari thrust forth their frontier and erected a citadel atop an imposing mesa, Cerro Baúl, where they held sway for 400 years. A mere five miles away, the Tiwanaku toiled in their fields and built grandiose temples of stone and adobe. Recent Field Museum research on this majestic peak has revealed startling insights into how the Wari and Tiwanaku interacted, and how their dynamic relationship ultimately contributed to the rise of the Inca Empire.

An anthropological rarity

Cerro Baúl is a unique mesa formation in southern Peru looming 600 meters above the valley floor. Today it is an *apu*, or sacred place, that serves as a pilgrims' destination for making offerings to the mountain spirit. In Wari times, a small city rested on its summit with palace complexes, temples and ritual feasting facilities for entertaining dignitaries. Despite the fact that the Wari and Tiwanaku apparently shared a 500-kilometer border between Moquegua and Cuzco, Cerro Baúl is the only place where evidence of direct interaction has been discovered thus far. It is clearly a unique combination of fortress, provincial capital, imperial embassy and sacred city. Since the overlap between ancient states that never conquered one another is rare, the Moquegua frontier is a unique place for studying the dynamics of imperial confrontation and ethnic diversity.

Similar faiths, different societies

Although the Wari and Tiwanaku shared similar iconography and religious practices, they were

economically and politically quite distinct. The Tiwanaku, virtuosos of stone masonry, built enormous temple mounds and palaces. They transformed the windswept *altiplano*, or high plain, into a network of groundwater-fed canals and raised field systems for altitude-tolerant crops such as potatoes, tubers and quinoa. Herding such animals as the native Andean llama and alpaca provided both meat and wool. However, in order to grow temperate crops, such as corn and coca, two important staples to Tiwanaku ritual life, they had to extend into the lower valleys toward the Amazon or the Pacific Ocean.

The Wari, on the other hand, centered their empire along the spine of the Andes. They perfected high-altitude irrigation terracing to turn the steep mountain slopes into productive farmland for corn, peppers, coca and other crops. Their capital was a thriving city of several square kilometers and tens of thousands of inhabitants. Throughout their realm, they erected large, quadrangular complexes of tall, straight-lined buildings that resembled barrack complexes with restricted access. From afar, these did not look like the temple pyramids of the Tiwanaku, but



RYAN WILLIAMS

were imposing urban intrusions on the landscape. Wari textiles and pottery show vibrant depictions of warriors, anthropomorphic beings and Viracocha, the principal deity. While the Tiwanaku invited worship through their colossal temples—featuring monuments carved with Viracocha and other supernatural beings—the Wari brought religion to the people through the mundane material objects of textiles and pottery.

The superpowers cease

These two vastly disparate civilizations met each other in the Moquegua sierra. Through our research at Cerro Baúl, we have been tracing their intertwined development and ultimate political demise sometime around 1000. Early interaction was limited. The Wari brought large numbers of settlers to colonize the region surrounding Cerro Baúl (ca. 600), while Tiwanaku settlement was limited to the lower reaches of the Moquegua river valley. This hostile standoff was not resolved by violent exchanges, at least as reflected on Tiwanaku skeletal remains, but rather through radical changes in Wari and Tiwanaku politics.

The Wari reconstructed their mountaintop city to incorporate offices for the state. Meanwhile, the Tiwanaku downstream built an immense temple complex at Omo, the only one of its kind outside the Tiwanaku altiplano heartland. Finally, many Wari colonists left their homes on the slopes of Cerro Baúl, and new communities made up of Tiwanaku settlers began to form around the Wari summit.

These new alliances between Tiwanaku settlers

Donna Nash and Kirk Costion note the depths of the first excavation layer.

and Wari elites may have contributed to the Tiwanaku's decline. Factions formed between the Tiwanaku peoples who lived under Wari rule and those who remained loyal to the downstream Tiwanaku state elites. The loss of labor resources and people leaving their political lordship may have destabilized the Tiwanaku status quo. Some scholars have argued that a severe drought that began around 1050 led to the Tiwanaku's collapse. If our reconstruction of the social splitting is accurate, the inherent vulnerability in the social system may have impeded an effective response to the drought.

Not long after 1000, both Tiwanaku and Wari had abandoned their Moquegua settlements, and reverberations spread throughout their realms. By 1100, the sister states had entirely collapsed. Smaller regional kingdoms ensued, building on the developments of the Wari and Tiwanaku. One of these eventually became the Inca Empire, the most powerful and extensive native state the Americas had ever seen.

Investigating these ancient Andean supremacies is giving us new insights into how communities integrate, how they cope with the power of the empire and how they ally themselves with competing polities to achieve local autonomy. In today's world, where national priorities and security reach beyond our traditional borders and force us to interact with other nations, often aggressively, it is imperative to examine these interactions and their effects on people and communities. While government administrations come and go, it is the people who endure and ultimately judge the interpretation of history. **ITF**

The Cerro Baúl Expedition has been sponsored by the G. A. Bruno Foundation, the Heinz Family Foundation, the National Science Foundation, the Asociación Contisuyo, the University of Florida and The Field Museum.

Visit www.fieldmuseum.org for more information on Drs. Williams and Nash.

Classic Wari ritual drinking vessels from Cerro Baúl. The first is modeled as a human foot.



RYAN WILLIAMS

How did they find that?

Buried remains may be invisible on the ground surface, but using techniques related to x-ray imaging, archaeologists can "see" what's underneath to understand how ancient societies developed and flourished. In one instance, we used geophysical survey technologies at Cerro Baúl to map out remains of the ancient city. Since excavation is time consuming and expensive, we are limited in the amount of area we can expose. With ground-penetrating radar, we transmit a radar wave into the ground—about the same frequency as a television broadcast antenna—and measure its reflections off of buried objects. This way we can distinguish hidden archaeological features, such as ancient buildings, tombs or buried agricultural fields. The Field Museum's Laboratory for GIS & Remote Sensing now manages an array of techniques and equipment for this type of research.

Ryan Williams uses a gradiometer to sense differences in the Earth's magnetic field that represent buried archaeological features.



Field Museum Researchers Help Trace Origin of Madagascar's Mammals

Greg Borzo, Media Manager, Academic Affairs

Madagascar's fаланouc (Eupleres goudotii), a nocturnal, solitary animal that is endangered, descended from animals that dispersed from Africa 24 to 18 million years ago.



All of Madagascar's living Carnivora, which includes dogs, cats, bears, hyenas and their relatives, descended from a single species that drifted across the ocean aboard wayward vegetation about 24 to 18 Mya. Previously, scientists believed that Madagascar's seven living Carnivora represented separate lineages that colonized the island independently.

"Our research shows that all of Madagascar's Carnivora together represent a unique evolutionary branch formed by a significant, one-time event," said co-author John Flynn, MacArthur curator of fossil mammals at The Field Museum. "In fact, all 100 or so known species of terrestrial mammals native to Madagascar, which fall into four orders—carnivorans, lemurs, tenrecs and rodents—can now be explained by only four colonization events."

The intractable mystery of how and when mammals first populated Madagascar stems from the fact that the fossil record is virtually non-existent for the last 65 million years. To overcome this problem, the researchers compared the genes of today's Carnivora to some of their closest relatives in Africa and Asia. They also estimated when the animals differentiated from each other.

The new research establishes that Carnivora arrived on the island more recently than other theories had predicted.

"At long last, statistical methods for estimating divergence ages are becoming sufficiently sophisticated that we can have confidence in their accuracy," said Anne Yoder, associate professor of evolutionary biology at Yale University, Field Museum research associate and lead author of the *Nature* paper.

The study also says that lemurs colonized Madagascar in a single over-water event about 66 to 62 Mya, confirming that crossing a large water barrier rarely occurs among land mammals.

The authors noted that many of the mammals' ability to hibernate or maintain a state of torpor for long periods might have helped them survive the long voyage without food or water. Such information can help us understand other mammal dispersals, such as how monkeys and rodents got from Africa to South America.

Madagascar's biodiversity today

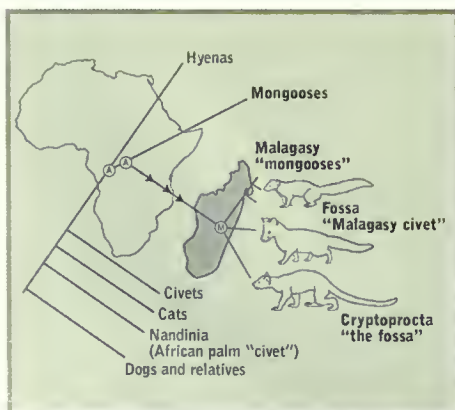
Madagascar, which lies about 240 miles off of Africa's east coast, is the world's fourth largest island. Since some 80 percent of its plants and animals live only there, the island offers incredible insight into evolution, biodiversity and biogeography.

Field Museum researchers have been actively studying the fossil record and modern animal life in Madagascar. Collaborating closely with the Université d'Antananarivo, Flynn has led five fossil-collecting expeditions there since 1996, and Steven Goodman, a Field Museum biologist, has lived and worked there for 12 years. His definitive 1,500-page book, *The Natural History of Madagascar*, co-edited with Jonathan Benstead, will be published later this year.

"The *Nature* study is extremely important for understanding the biogeographic history of Madagascar and the evolution of Carnivora," Goodman said. "It also will inform conservation decisions and could be used to help preserve what's left of Madagascar's precious biodiversity." **ITF**

The study was supported by grants from the National Science Foundation and conducted with colleagues from Yale University, Northwestern University and the Muséum National d'Histoire Naturelle (Paris). WWF (Antananarivo, Madagascar) and the Université d'Antananarivo provided essential assistance and support.

A cladogram showing the dispersal of Madagascar Carnivora from Africa.



MARLENE HILL DONNELLY

Step to the Plate in Our Field of Dreams

Enjoy our main hall transformed into a field within the Field—a baseball field, that is, replete with virtual batting, ballpark fare, Hall of Fame guest appearances and more.

On Friday, June 20, from 8pm to 1am, join the Field Associates for its annual fundraiser. Field of Dreams, featuring the *Baseball As America* exhibition, will celebrate this beloved sport's values—teamwork, diversity, fair play, opportunity, invention and excellence—while raising funds for the Museum's capital campaign.

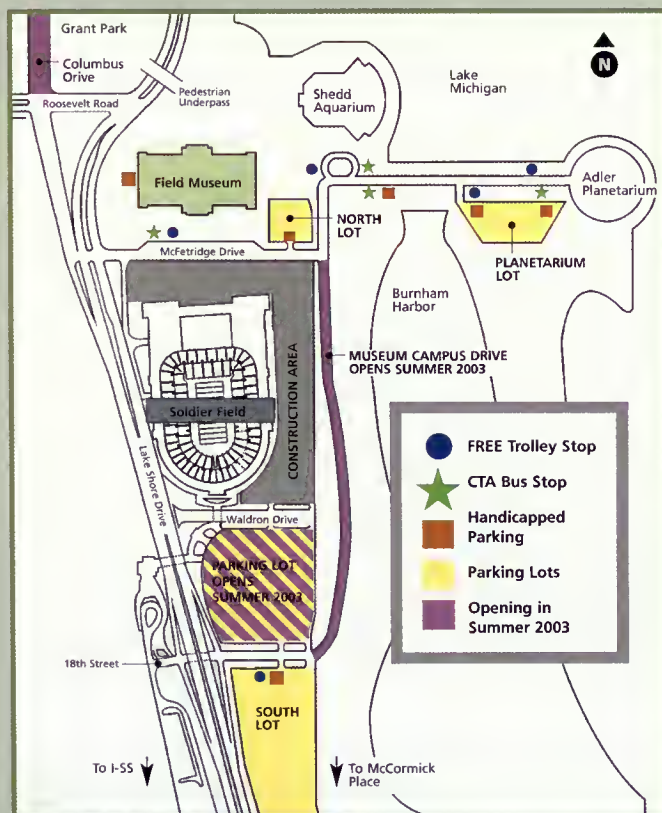
Have fun with numerous games, including virtual batting, dunk tanks and pitching contests. Dance with the Gentlemen of Leisure, a popular Chicago jazz band. Munch on your favorite ballpark snacks, from Cracker Jacks to jumbo dogs. Try your luck in our raffle and silent auction, which will feature coveted baseball-related prizes, as well as restaurant, retail and travel packages. Catch a close-up glimpse of your favorite Hall of Fame legends and White Sox and Cubs players, who will appear throughout the evening.

Tickets are \$55 for Field Associates members, \$65 for non-members and \$75 at the door. Block tickets are available at 10 for \$550. Visit www.fieldmuseum.org/fieldassociates for tickets, or contact Erin Mersinger, Field Associates manager, at 312.665.7133 or emersinger@fmnh.org.

The Field Associates is a diverse group of young professionals committed to promoting the Museum's collections, research and public programs. It recently provided funding for our new customized guides, interactive tools that help visitors organize their trip around specific exhibitions and themes.



More Improvements Coming to Museum Campus



After a challenging year and a half of construction around Museum Campus and Soldier Field, we are finally beginning to turn the corner. Several projects are coming to completion that will ultimately mean easier, safer access for you and your family and friends.

McFetridge Drive, the street that connects Lake Shore Drive to the Museum Campus, will partially close this summer for renovation. Around the same time, a new two-level parking lot with 1,600 spaces is expected to open just south of Soldier Field, accessible via 18th Street. A new scenic boulevard, also scheduled to open in early summer, will connect this lot to Museum Campus. Free trolleys will continue to transport you to and from all parking lots. In the fall, the most anticipated addition should be completed—an indoor parking lot with 2,500 spaces directly across from The Field Museum.

Public transportation remains a great alternative to driving. CTA offers direct bus service from downtown and commuter rail stations to Museum Campus. Free Museum Campus trolleys also run to and from CTA's Roosevelt Road rail stations every day of the year.

As with all major construction projects, schedules are subject to change. Please check www.museumcampus.org before your visit for the latest information on travel and parking. We appreciate your patience throughout this transition time and eagerly await your return visits.

The First Specimens: Honoring 110 Years of Collections and Research

To some, it's a dead frog in a Petri dish. But to a zoologist, the leopard frog below represents a treasury of scientific data.

The Field Museum was founded to house collections from the World's Columbian Exposition of 1893. 110 years later, our collections, comprising about 21.5 million specimens and artifacts, are the backbone for nearly everything we do.

Scientists have described only 2 to 15 percent of all estimated species in the world. Collections, therefore, are essential to research and conservation. They help us know when a new species is really a new species. They can tell us how human behavior affects nature's populations over time, such as how pes-

ticides have led to declining bird populations. We can identify important areas to protect: Inventorying Peru's plants and animals led to establishing a national park. We can use collections to train conservationists in countries where scientific expertise is in short supply, such as Bhutan. And we can incorporate collections into our educational programs and exhibitions.

Below are some of the Museum's first specimens to honor more than a century of collecting and collections-based research. Watch for more in the fall issue of *In the Field*.



1

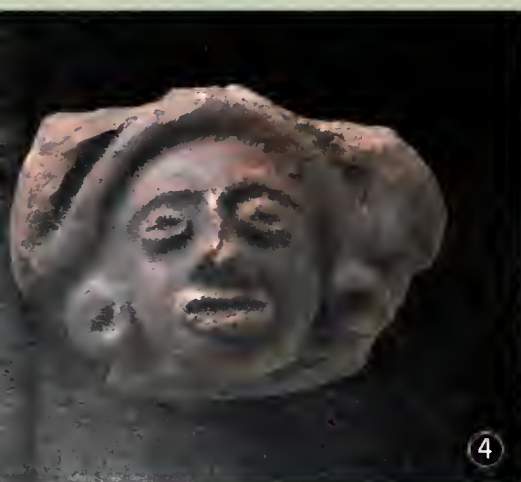


2



JOHN WEINSTEIN/ 1.Z94371.01D 2.GEO86367D 3.Z94368.01

1) Leopard frog, *Rana pipiens*. Zoology's amphibians and reptiles collection. The first specimen collected by the Museum's first curator of ichthyology and herpetology, Oliver Hay, in Chicago in 1895. 2) Red sandstone (left) from Connecticut, stony meteorite (middle) that fell in Iowa in 1875 and granite (right) from France. Some of the first specimens acquired through the Exposition of 1893 for the physical geology collections. 3) Bicknell's Thrush, *Catharus bicknelli*. Catalog #1 in zoology's bird collection. Collected by George Cherrie in 1895 from the Dominican Republic.



4



5



JOHN WEINSTEIN/ 4.A114234.01D 5.Z94374.01D 6.Z94370.01D

4) An Aztec ceramic head from AD 1300-1520 representing Coatlicue-Cihuacoatl. A rattle probably used for religious purposes. Catalog #1 in the anthropology collection. Collected by F. H. Sellars before 1904 in Mexico. 5) Yellow bullhead, *Ameiurus natalis*. Zoology's fishes collection. Collected by Oliver Hay from Indiana in 1875 or 1895. 6) *Tibia insulaechorab* Rödiger. Collected by Peter Forsskål in 1762 or 1763 from the Red Sea during a Danish expedition to Arabia. He died of malaria in Yemen. Part of a collection that had several owners before we acquired it in 1959, and probably among the invertebrate division's earliest collected specimens.

New Free Services to Enhance Your Experience

To enhance your experience with The Field Museum, we've developed two new free offerings to better serve you and deepen your connection to our vast institution.

The first is *e-News From The Field*, an electronic newsletter published every six to eight weeks with the latest details on new exhibitions, groundbreaking research, fun family programs and other activities that you won't want to miss. Log onto www.fieldmuseum.org and click on the "Sign up for e-newsletter" button to subscribe.



Even the most frequent Field Museum visitor can feel overwhelmed by all there is to see and do. On your next visit, pick up our new *Family Highlights Tour*, the first in a series of customized guides to help you organize your trip around a specific theme. This itinerary incorporates "can't miss" sights and questions to explore related to four different exhibition trails—*Dinosaurs*, *Inside Ancient Egypt*, *Underground Adventure* and *Nature Walk*.

The customized guides are sponsored by Bank One. The Field Associates generously provided additional funding.

A Higher Investment

Increase your support of The Field Museum by joining the annual fund, one of the best ways to provide important financial resources above and beyond those derived from daily admission fees, sales and membership.

Please consider becoming part of a significant group of donors this year by renewing at the annual fund level, which starts at \$100. Visit our table at Members' Nights for more information, or contact us at 312.665.7777 or annualfund@fmnh.org.

Hotel Packages for Family and Friends

With convenient locations, wonderful amenities and a range of options for every budget, several Chicago area hotels are offering special packages that include tickets to *Eternal Egypt*. Below is a snapshot of our hotel partners and one of the tempting amenities they each offer. Check the "Planning Your Visit" section on www.fieldmuseum.org for details.



Chicago's Essex Inn

800.621.6909

Complimentary 24-hour valet parking

Days Inn Lincoln

Park North

888.LPN.DAYS

Deluxe continental breakfast

The Fairmont Chicago

800.441.1414

Late 5pm checkout on day of departure

Hotel 71

800.621.4005

Full-color *Eternal Egypt* catalog

Lenox Suites Hotel

312.337.1000

Continental breakfast for two

Millennium Knickerbocker

800.621.8140

Complimentary continental breakfast

Park Hyatt Chicago

312.335.1234

Complimentary limited-edition photo book

Swissôtel Chicago

888.737.9477

Breakfast for two at Geneva or through room service

Tremont Hotel

312.751.1900

Either an "Absolut Egypt martini" or dessert at Mike Ditka's Restaurant

Year of Biodiversity and Conservation

Starting This Fall

Explore our contributions to biodiversity science. From September 2003 through May 2004, The Field Museum's Year of Biodiversity and Conservation will offer exclusive opportunities to meet our scientists, hear lectures, visit special exhibitions and participate in educational programs that feature our research in service to the Earth and its inhabitants. Each month we will highlight a different theme, bringing important perspectives to some of the most provocative and pressing environmental topics of our time. This fall, watch for programs on climate change in September, African biodiversity in October and genetic biodiversity in November.



JOHN WEINSTEIN/GN90491_179D

Conservation makes a world of difference.



Jenny McElwain, PhD

Assistant Curator of Fossil Plants
at The Field Museum in
Jackson Land, Greenland

Dr. McElwain specializes in the interaction between plants and their environment and has found evidence of global warming by comparing atmospheric conditions with those in the past and their relative impact on fossil plants.

Hear Dr. McElwain speak on Saturday, Sept. 21, 2 pm.



INTHEFIELD

Fall 2003
September–
November

The Field Museum's Member Publication



The Field Museum's
Year of Biodiversity
and Conservation

Real Scientists, Real Science: The Year of Biodiversity and Conservation (YBC)



JOHN WEINSTEIN/CORBIS 196

Our planet's bountiful variety of plants, fungi and animals—what scientists call “biodiversity”—is worth celebrating and preserving. Biodiversity is not just the sheer numbers of species on Earth, but also the web of complex partnerships that connects every living organism. No species, including humans, can exist without interacting with other species.

Nature provides innumerable benefits that sustain human life, from the fundamental resources of air and water to food, shelter and medicines. Yet species are vanishing at a frightening rate. If humans continue altering the environment through such activities as pollution, deforestation and over-fishing, a major extinction—likened to the disappearance of dinosaurs—is inevitable. Scientists have described only 1.75 million species, a tiny fraction of the estimated millions more that exist. If we do not know what is out there now, how can we race to conserve it for the future?

The Field Museum is dedicating this academic year as The Year of Biodiversity and Conservation (YBC). For more than a century, Museum scientists have scoured the Earth's natural areas in search of specimens that can teach us about biodiversity. Today, some 600 researchers—from our own curators to graduate students to visiting scientists—are affiliated with the Museum, either documenting biodiversity or designing measures to protect it. Each one, regardless

of his or her particular research interest, is passionately committed to answering basic questions on what's out there and why it's important to the fragile web of life.

Our collections, which now number 22 million specimens and artifacts, are the lifeblood that sustains the Museum's scientific endeavors. More than drawers filled with specimens, the collections are a carefully conserved archive of nature and culture that is available to researchers worldwide. By comparing the appearance, behavior, genetic makeup and other factors of a recently obtained specimen to one we already have, researchers can understand evolution, how environmental changes affected a particular species or, in some cases, if an unusual specimen is truly new to science.

During a fossil-collecting expedition to Wyoming, Lance Grande, a curator in geology, wrote this in an email for the expeditions@fieldmuseum.org program: "Without collections such as ours, and those of a handful of other major research museum around the world, much of the documented knowledge on the natural sciences would be in danger of collapsing like a house of cards."

But how effective would we be if we were working alone? Training the next generation of scientists is a mission few Museum scientists take lightly, especially in countries where education, funding and research facilities are limited. From Central America to Asia to Africa, we're actively training students, park rangers and others in collecting and collections-based research.

Ultimately, building a critical mass of scientists worldwide is the only way to advance long-term studies and protection of the Earth's biodiversity. The Field Museum is spectacularly positioned to contribute to this effort.

Each month of the YBC will highlight a different environmental theme through special education programs, exhibitions and opportunities to meet or learn about Field Museum scientists. (The next three issues of *In the Field* will be dedicated to the YBC.) To kick it off, participate in Chicago's first Race to Stop Global Warming on Sunday, Sept. 21. Then come to the Museum that afternoon for exciting performances and educational activities.

Our scientists are unsung heroes working behind the scenes and around the world to shed light on the global status of plant and animal life. Please support our work in biodiversity and conservation with the enclosed gift envelope. We're proud of our scientists and their unrelenting efforts, and we know you are too.

John W. McCarter, Jr.

John W. McCarter, Jr.
President & CEO

Support for Year of Biodiversity and Conservation programming provided by the City of Chicago, Richard M. Daley, Mayor; Department of Environment, N. Marcia Jiménez, Commissioner.

Hear about lemon shark research during the YBC's November theme of genetic biodiversity.



TIM CALVER

What do you think about In the Field?

For general membership inquiries, including address changes, call 312.665.7700. For questions about the magazine *In the Field*, call 312.665.7115, email acranch@fmnh.org, or write Amy E. Cranch, Editor, The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496.

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Cover: African Sunbirds, by Peggy Macnamara.

The Field Museum salutes the people of Chicago for their long-standing, generous support of the Museum through the Chicago Park District.

The **Field**
Museum

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312.922.9410
www.fieldmuseum.org



RAURI BOWIE



MIHAJ POPA

2

The enigmatic sunbird is a model for exploring Africa's high-altitude birds.
Top: Golden Winged Sunbird, Nectarinia reichenowi

4

The Pritzker Lab makes analyzing DNA as easy as baking a cake.
Middle: Dr. Kevin Feldheim uses DNA to study mating among lemon sharks.

6

Join an all-star cast of human origins and evolution experts to honor 100 years of discovery since the birth of legendary anthropologist Louis Leakey.

16

Geology experts collected 1.5 tons of plant fossils from Greenland that might reveal the effects of global warming.
Bottom: Dr. Jennifer McElwain led the month-long expedition.

Museum Campus Neighbors

After 20 months of construction, **Soldier Field's renovation** is wrapping up this fall. We welcome the new amenities that will serve stadium and Museum Campus guests alike, including a children's garden, improved signage and, most importantly, better parking.

Parking near the museums has been challenging during the past two summers. The Waldron Parking Garage south of Soldier Field, accessible via 18th St., has now opened. A new 2,500-car garage directly across from The Field Museum is slated to open this fall. Limited parking is still available in the North and Planetarium lots as well. Free trolleys continue to serve all lots surrounding Soldier Field and the museums.

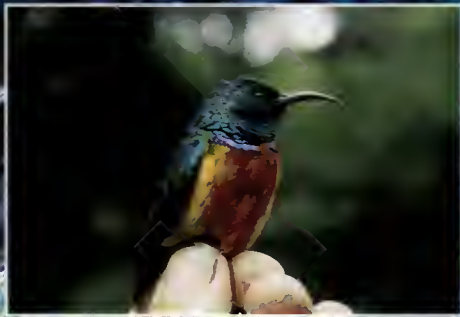
Public transportation remains a great alternative to driving. Many CTA bus routes serve Museum Campus, and free trolley service is provided from the CTA and Metra train stops on Roosevelt Road.

For the latest information on parking, trolleys and more, check www.museumcampus.org before your visit. We appreciate your patience during the stadium's long construction period, and eagerly await your return visits.

Sunbirds a Model for Studying African Bird Evolution

Dr. Rauri Bowie, Postdoctoral Fellow, Zoology Department

The sunbirds were in a taxonomic pinch. Field Museum scientists wanted to use these vibrant, enigmatic birds as a model for exploring how birds developed in Africa's montane (high-altitude) forests. But there was something missing—a solid evolutionary tree, making any inferences beyond that almost impossible. It's like building a house with no foundation. Four years and 3.5 million base pairs of DNA later, an evolutionary tree for African sunbirds finally took root.



Islands in the sky

*Nectarinia notata,
Madagascar*

*Inset: Regal Sunbird,
Nectarinia regia,
Uganda*

A 5,000-kilometer chain of mountains runs along Africa's east coast from Ethiopia to South Africa, with additional isolated mountain chains to the far west in Angola and Cameroon. Only a few scattered areas are high enough (greater than 1,800 meters) for montane forests to develop. Some of these habitats are within sight of each other, whereas others are separated by hundreds of kilometers. Yet, in nearly all cases, the intervening vegetation bars species from moving from one highland to another, thus confining their breeding ranges to high, isolated habitats.

In addition, mountain vegetation is stratified into distinct zones with radical physical conditions. Thin air and a predominantly cloudless sky freeze the upper slopes at night and scorch them by day. While it is rare for tropical organisms to survive this daily ordeal, whole communities, in fact, have adapted to these habitats.

Nearly 300 species of African birds breed above

1,800 meters in montane zones and are among the continent's most rare birds. Some species are restricted to a single mountain range with populations that may total less than 2,000 individuals. This makes studying them a high conservation priority. Like many species that need protection, however, very little is known about them. It is puzzling, for example, that despite huge distances and unfavorable habitats between montane ranges, many bird species reappear in even the most secluded forests. Did they fly over, or were these ranges once connected?

Approximately 83 species of sunbirds, which include the largest bird genus *Nectarinia*, have developed in Africa. Nectar-feeders and pollinators like hummingbirds, they are most abundant in areas where other montane birds exist, thus making them ideal candidates for studying high-altitude birds.

Whereas most sunbirds are African and live in forests, species occur throughout the Indian Ocean

islands, Asia and Indonesia, with one species reaching Australia. Some species occupy such harsh environments as the deserts of South Africa and the Afro-alpine heathlands of Africa's tallest mountains. Yet despite these widely different habitats, sunbirds exhibit remarkable skeletal uniformity. At the same time, their dissimilar morphological features, such as multihued, iridescent plumage and varying beak lengths, have made it difficult to establish their origins and relationships. Two species that look alike and have similar life histories might actually be as different as a lion and a house cat, a process called convergence. Sunbirds' muddled evolutionary relationships casts doubt on their utility as a model for exploring high-altitude biogeography.

The Field Museum is one of only a few U. S. institutions with one of the largest bird tissue collections in the world, a modern laboratory for DNA analyses and nearly all of the world's sunbird species in its collections. This enables me and other researchers to combine traditional morphological studies with more modern DNA sequencing studies, which is why I have been visiting The Field Museum since 1999.

Piecing it all together

After four years of shuttling between South Africa and The Field Museum, I finally have a better understanding of sunbird relationships. Dr. Shannon Hackett, a curator in birds, and I assembled 3.5 million base pairs of DNA—the largest DNA sequence dataset for any bird family to date—and reconfigured the phylogenetic tree. The Asian sunbirds form a cluster at the base of the tree, which suggests that sunbirds originated in Asia. After colonizing Africa 8 to 11 million years ago, the species underwent a rapid and dramatic radiation, possibly because nectar plants were available, which resulted in exceptional species richness.

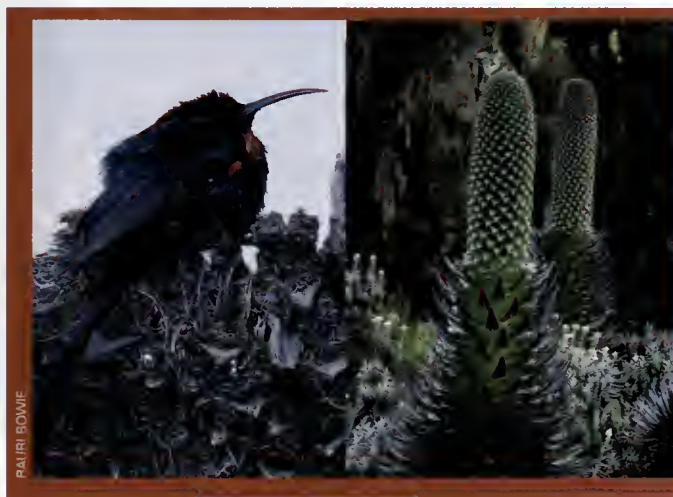
However, one Asian species, the Olive-backed Sunbird, is more closely related to African sunbirds than to any Asian species, which suggests that at least some birds moved back to Asia. Further, the family tree we constructed implies that structural uniformity among sunbirds is due to similar behaviors (i.e. all feed on nectar), rather than a common evolutionary origin (i.e. convergence). We have also noted that the present taxonomy, which was based on lumping short- and long-billed species into groups, is in disarray. Using the revised family tree, we are developing an alternative classification scheme for sunbirds.

Back to square one

With an improved understanding of sunbird evolution, I have been able to turn my attention back to unraveling the relationship intricacies among

Africa's other montane bird communities. DNA analyses to date are intriguing: Many populations appear to be much more isolated than previously thought, with little to no gene flow occurring among populations once thought to be connected. The results suggest that temperature and rainfall changes during the past 3 million years have caused the montane forests to repeatedly contract and expand, thus successively connecting and breaking apart montane communities. In some cases, we have been able to corroborate morphological evidence, such as different plumage colors, with DNA data to suggest that some populations should be accorded species status. In the same vein, our fieldwork has uncovered a spurt of new distribution records and a possible new sunbird species from Tanzania.

I have started to branch out into other bird families in hopes of identifying regional mountain complexes where these diverse lineages reside. I am also trying to understand how these lineages fit into the larger Tree of Life for birds. I want to continue my yearly migration to The Field Museum to interact with its wonderful staff and make use of



Left: Scarlet Titled Malachite, *Nectarinia johnstoni*

Right: *Lobelia* sp., a habitat for some sunbirds

its facilities and collections. Understanding how African montane communities evolved impinges on their conservation. Whether we are studying one bird species occurring on five mountains or five bird species each restricted to one mountain, the conservation implications are dramatically different.

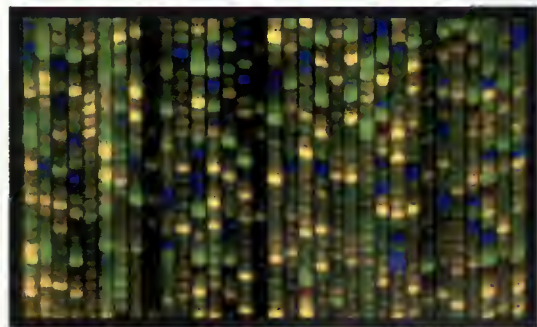
Our research on African sunbirds is a striking example of how broad and sometimes messy science can be in order to loosen the knots around a particular area of interest. In my case, I had to understand sunbird evolution before I grasped when mountains merged and diverged. Today's scientists have to be geographers, geologists, climatologists, behavioral scientists, DNA specialists and more. And sometimes we have to take two steps back before moving forward in our original research goals. Then again, that's half the fun of being a scientist. **ITF**

Pritzker Lab Follows Recipe for DNA Analysis

Kevin Feldheim, PhD, Manager, Pritzker Laboratory for Molecular Systematics and Evolution

If you've ever baked a cake, then you have the skills necessary to become a molecular biologist. Isolating DNA from a cell, whether from skin, a blood smear or a hair follicle, is as easy as following a recipe.

Since the double helix was described 50 years ago, DNA—the unit of inheritance found in every living cell—has revolutionized how we view the world. While television and film showcase DNA's power as a crime-fighting tool, scientists use it to address fundamental questions on how all living species are related and evolved. As complex as this task may seem, DNA itself is quite simple. It is made up of four components, the nucleotides adenine (A), thymine (T), guanine (G) and cytosine (C). The only difference between your DNA and that of the fungus on your shower floor is how these nucleotides are arranged! The Field Museum's Pritzker Laboratory for Molecular Systematics and Evolution helps biologists answer many questions that were, until recently, intractable.



JOHN WEINSTEIN/87885.66C

*Right: Lemon shark
Above: A DNA sequence*

One of the first and most advanced such labs among natural history museums, the Pritzker Lab was created for the genetic analysis and preservation of the world's biodiversity. In my opinion, it's the most exciting place to work in Chicago. Where else can you find scientists research-

ing organisms from around the globe that span the taxonomic spectrum, including fungi, bats, frogs, millipedes, parrotfish, clams, moths, birds, kelp, ancient humans, lichens, and, my favorite, sharks?

Equally as diverse are the scientists who use the lab, from our own curators and postdoctoral associates to graduate students and visiting scientists. In fact, only about 50 percent of the lab's users are American. For example, Nora Wirtz, a student from Germany, is working with botany curator Thorsten Lumbsch to study Antarctic lichens. Pepe Tello, a Peruvian student at the University of Illinois, is exploring South American birds.

Shark mating a genetic predicament

My interest in sharks was piqued when my parents wouldn't let me see *Jaws*: I've been fascinated ever since. In particular, I study the mating system of lemon sharks, large coastal sharks found mainly in the western Atlantic. Sharks have a startling variety of mating habits. Some lay eggs, winding the egg cases around seaweed or pushing them into rock crevices. Others retain eggs in the womb, giving



birth to live pups. Other species have a placental-like connection between mother and pup. Lemon sharks, in fact, are born with the umbilical cord still attached and have a belly button for the first year of their lives.

How did such incredible diversity come to be? Although sharks inspire great fiction, fear and fascination, almost nothing is known about them scientifically, especially compared to other vertebrate groups. One of my dissertation advisors has been studying lemon sharks for more than 30 years and has never seen them mate! Using DNA collected from lemon sharks at Bimini, Bahamas, 40 miles east of Miami, Fla., we were able to address the mating mystery.

DNA analysis step by step

We extract a fin clip the size of aspirin from sharks we encounter, and from there, isolating and analyzing DNA in the lab is relatively straightforward. First, a simple detergent breaks down the tissue

and cells, releasing proteins, cellular debris and DNA. The proteins are removed, and ethanol and salt are added to separate out the DNA. The DNA pellet is re-suspended in a buffer, containing our organism's entire genome within a one-inch tube.

Since whole-genome analysis isn't practical—sequencing the human genome took years and scores of scientists worldwide—we examine specific



TIM CALVER

regions of DNA depending on the questions we are asking. I want to identify the mating practices of individual sharks, so I use extremely variable regions that enable me to genetically distinguish one individual from another. Other scientists in the lab, testing differences between whole populations or species, use regions that are not as variable.

To examine a specific DNA region, we copy it with a simple method called polymerase chain reaction (PCR). To prepare, we mix DNA, nucleotides (As, Gs, Ts and Cs), primers (short pieces of DNA that bind to our target DNA region) and a catalyzing enzyme in a small tube. In the first step, called denaturing, the double-stranded DNA is broken apart into two single strands. Then, during annealing, the primers bind to the areas surrounding our region of interest. In the final step, called extension, the individual nucleotides attach to the primers one after another to form a new strand of DNA.

These three steps are repeated 25 to 35 times and produce hundreds of millions of copies of the segment of interest in just two to three hours. The DNA, visualized on a gel that resembles a thin slice of Jell-O, is ready to be analyzed.

I perform an analysis that simply enables me to compare the sizes of amplified DNA between individual sharks. But the most common analysis used in the Pritzker Lab is called sequencing. Here, nucleotides that lack a hydroxyl (an oxygen-hydrogen group) are added to every position on the target region to stop it from extending. This results in fragments of different lengths that are labeled with one of four fluorescent dyes. Then the DNA is run through an automated sequencer. A laser causes the dye molecules to brighten and focus as columns of light that, on paper, look like a panorama of colored roller coasters. This enables the instrument to differentiate and sequence the As, Gs, Ts and Cs, making our job that much easier.

What the sequences tell us

What do scientists glean from the data? They search for similarities and differences that may help explain how a species evolved. If the DNA matches in taxa nos. 1, 2 and 3, we can assume that they're the same species. If the DNA in taxon no. 4 deviates, we can assume it's a different species. Mapping out these similarities and differences is how scientists construct a phylogenetic, or relationship, tree. From here scientists can investigate endless characteristics based on their specific research questions as how crab-eating evolved in certain Philippine snakes or why certain ginseng species exist in only two places on Earth. John Bates, chairman of the zoology department, discovered a new species of flycatcher using DNA sequences.

DNA analyses enabled my team to determine that most female lemon sharks mate with more than one male to produce each litter. We also discovered that female lemon sharks return to Bimini every other year to give birth to their litters.

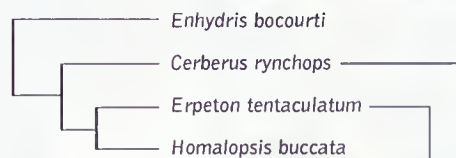
Darwin's brilliant vision of a Tree of Life, in which all life forms are genetically linked, has prompted scientists to classify organisms into groups and discern relationships. Yet many branches of the Tree of Life remain unanalyzed, even unknown. The Pritzker Lab, with its cutting-edge technology and researchers, is contributing to a greater understanding of how life evolved. **ITF**

As part of the Year of Biodiversity and Conservation, Dr. Feldheim will lead a tour of the Pritzker Lab on Friday, Nov. 14. See the calendar for details.

Phylogenetic trees help us differentiate once species from the next.



J.C. MURPHY



J.C. MURPHY

Celebrating a Legend: Centennial Tribute to Louis Leakey

For millions of years, East Africa has been a main stage for one of our planet's greatest dramas—human evolution. Modern African paleoanthropology began with Louis S. B. Leakey, a dashing scholar and storyteller who opened the world's eyes to that continent as the birthplace of humans. He enraptured crowds with accounts of his search for ancient human fossils and demonstrations with simple stone technology. His devotion fueled a family business that has trickled down three generations, and a public passion for prehistory that has never abated.

To honor 100 years of discovery since Leakey's birth, The Leakey Foundation in collaboration with The Field Museum is presenting a once-in-a-lifetime gathering of leading scientists who will trace the trail of discoveries to as recent as this past summer. (See the calendar for program details.) Never before, and quite possibly never again, has such

an extraordinary lineup of human origins experts been assembled.

Mother-daughter team Drs. Meave and Louise Leakey will lead the weekend with reflections on their experience as Leakey family members and on their own remarkable discoveries. In 1999, Meave and Louise uncovered *Kenyanthropus platyops*, a 3.5 million-year-old skull that threatens to

overturn the prevailing view that early humans evolved from a single line of descent.

Meave met Richard Leakey, Louis' son, while working at a primate research center near Nairobi in the mid-1960s. They married in 1970 and had two daughters, Louise and Samira. Meave has focused primarily on finding evidence of the very earliest humans at Kenya's Lake Turkana. She has also held a number of research and leadership positions with the National Museums of Kenya.

Louise, born in 1972, grew up around bones. In addition to leading expeditions with her mother, she is reviving the research station her parents built decades ago with modern amenities and technology, while raising funds for the local community's school and medical center.

An impressive roster of archaeologists, paleoanthropologists and primatologists will also share their greatest inspirations, as well as their own greatest finds. Following is a sampling of what you could

learn about:

- In July 2003, Juan-Luis Arsuaga and his team announced fossils they had found in Atapuerca, Spain, of million-year-old cannibals thought to be ancestors of modern humans. This significant site has yielded the largest, most complete accumulation of hominid bones ever recovered—30 individuals so far, estimated to be 400,000 years old.
- In March 2002, Berhane Asfaw and his team introduced to the public a million-year-old *Homo erectus* skull from Middle Awash, Ethiopia. It cannot be distinguished from Asian fossils of the same age, lessening support for the popular belief that African fossils should be placed in a separate species.
- In July 2002, Michel Brunet unveiled a new hominid fossil from Chad, *Sahelanthropus tchadensis*, that dates to about 7 million years and provides the best glimpse of human lineage origins.
- In June 2002, David Lordkipanidze revealed his discovery of a 1.75 million-year-old fossil from Dmanisi, Georgia. It is claimed to be the oldest human ancestor ever discovered outside of Africa, contending with a 1.9 million-year-old hominid from Java.
- Robert Martin, The Field Museum's provost and vice president for academic affairs, will discuss human reproduction from a primate perspective.
- Sileshi Semaw will be publishing new evidence this fall on the world's oldest stone tools (2.5 to 2.6 million years old) and their use. Cutmarks on associated animal bones show the clearest evidence yet that these tools processed animals for meat.
- Carel van Schaik will discuss recent research that identifies, for the first time, evidence of culture among the most solitary of the great apes, the orangutan.

The Centennial Tribute to Louis Leakey takes place Oct. 10–11. Visit www.leakeyfoundation.org for more information, or call 312.665.7400 to register.



Drs. Meave and Louise Leakey

The Centennial Tribute to Louis Leakey weekend program is presented with generous support from the Ann and Gordon Getty Foundation, Siftel Chicago Water Tower Fund, Inc., Chicago Public Radio and Robert Mondavi Winery.

YOUR GUIDE TO THE FIELD

Calendar of Events for Fall 2003 September–November

Inside: Exhibitions Festivals Family Programs Adult Programs



New Exhibition—Einstein

Oct. 17, 2003–Jan. 19, 2004



See the world through the eyes of a genius.

Albert Einstein had the daring imagination and passionate curiosity to change how we

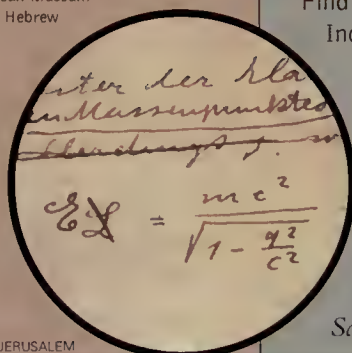
look at our universe. Meet the man behind the revolutionary theories through photographs, personal possessions, letters, multimedia displays and original manuscripts—including the 1912 document in which Einstein first wrote the famous equation $E=mc^2$.

Don't miss this opportunity to delve into Einstein's personal life, explore his humanitarian ideals and understand his groundbreaking work.

Einstein is a specially ticketed exhibition.

Einstein is organized by the American Museum of Natural History, New York; The Hebrew University of Jerusalem; and the Skirball Cultural Center, Los Angeles.

Einstein is made possible through the generous support of Jack and Susan Rudin and the Skirball Foundation, and of the Corporate Tour Sponsor, TIAA-CREF.



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Expand Your Mind

Einstein Speaker Series

Learn about Einstein's theories through a four-part series presented by The Field Museum and Adler Planetarium.

At the Field:

Einstein's Theory of Relativity

Dr. Robert M. Wald, University of Chicago

Comprehend the theories that revolutionized our understanding of space and time. Includes an exhibition walk-through.

Wednesday, Nov. 19, 6pm, \$15, students/educators \$12, members \$5

At the Adler's Far Out Fridays:

Dr. Peter Galison, Harvard University, author of *Einstein's Clocks, Poincaré's Maps: Empires of Time*, Oct. 3

Dr. J. Richard Gott, Professor of Astrophysical Sciences, Princeton University, Nov. 7

Fred Jerome, Syracuse University, author of *The Einstein File*, Dec. 5

Discounts for series subscriptions. To register, call 312.322.0323, or visit www.adlerplanetarium.org/einstein for details.

Development of the Human Brain

Dr. Robert Martin, TFM Provost and Vice President of Academic Affairs
Saturday, Oct. 25, 2pm, free with Museum admission

Black Holes

Dr. Donald Cooke, TFM Vice President of Institutional Advancement
Saturday, Nov. 15, 1pm and 3pm, free with Museum admission

Family Programs

Space, Time and Space-Time

Find out how Einstein combined two seemingly different ideas—space and time! Includes admission to Einstein.

Families with children ages 7–9

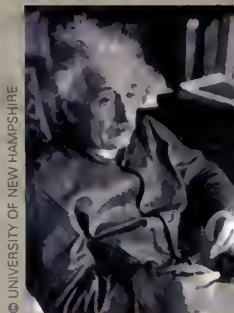
Saturday, Nov. 15, 1–2:30pm, \$20 per person, members \$18

Adventures in Four Dimensions

Using only one sheet of paper and your imagination, explore different dimensions, including the fourth dimension—time! Includes admission to Einstein.

Families with children ages 4–6

Saturday, Nov. 15, 10–11:30am, \$20 per person, members \$18



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The Field
Museum

General Museum Information: 312.922.9410

Family and Adult Program Tickets and Information: 312.665.7400

Join us for a Year of Biodiversity and Conservation.



The Field Museum's Year of Biodiversity and Conservation explores the most pressing environmental topics of our time through special lectures, exhibitions, opportunities to interact with Museum scientists and suggestions on how you can become personally involved in conservation.

September: Climate Change

Featured Exhibition:

Polar Thaw: Global Warming in the Arctic and Antarctic (Sept. 21–Nov. 16)

More than 30 striking photographs focus on the environmental consequences of a steadily warming Earth.

This exhibition was developed by Gary Braasch with The Field Museum and with the support of Natural Resources Defense Council.

Featured Events:

Race to Stop Global Warming

Join a Kids Fun Run, 15K, 8K or 5K run/fitness walk presented by the Green House Network.

Sunday, Sept. 21, 8:45am

To register, call 866.STOP.CO2 or visit www.racetostopglobalwarming.org.

Expedition to Greenland

Dr. Jennifer McElwain, TFM Geology Dept.

Investigate 200 million-year-old fossils that show how rising temperatures once contributed to a major plant extinction.

Sunday, Sept. 21, 2pm, free with Museum admission



October: African Biodiversity

Featured Exhibition: (Ongoing)

Explore Africa, home to amazing plant and animal life.



Featured Events:

Centennial Tribute to Louis Leakey

See next page for details.

Family Workshop: Animal Mask Making

See Family Programs for details.

Interactions or Conquest?

Dr. Chapurukha Kusimba, TFM Anthropology Dept.

Explore the interactions between people and wildlife in pre-colonial East African societies.

Sunday, Oct. 19, 2pm, free with Museum admission

Scientist Roundtable and Specimen Show-and-Tell

Meet Field Museum zoologists conducting research in Africa.

Saturday, Oct. 25, 2pm, free with Museum admission

November: Genetic Biodiversity

Featured Exhibition:

Life Over Time (Ongoing)

Explore the history and evolution of life on Earth.



Featured Events:

Family Behind the Scenes

Dr. Kevin Feldheim, TFM Pritzker Lab

Tour the Pritzker Lab, where scientists study plant and animal DNA.

Families with children ages 6–14

Friday, Nov. 14, 6–8 pm, \$15 per person, members \$12

Scientist at the Field

See a real DNA sequencer.

Saturday, Nov. 15, 11am–2pm, free with Museum admission

Celebrate a Legend: Centennial Tribute to Louis Leakey

Join an all-star cast of human origins and evolution experts to honor 100 years of discovery since the birth of legendary anthropologist Louis Leakey (1903–1972). Presented by The Leakey Foundation in collaboration with The Field Museum, this program will be a once-in-a-lifetime gathering of many of paleoanthropology's leading scientists. Enjoy illustrated talks, hands-on demonstrations and other activities as you explore recent news-making fossil discoveries and such topics as the earliest human technology, a Neandertal's diet, the evolutionary significance of mothers and grandmothers and the important role this research plays in conserving great ape populations.

Feature Presentation: Discovering Our Earliest Ancestors

Paleoanthropologists and mother-daughter team Meave and Louise Leakey have made significant contributions to our understanding of human origins. In this memorable presentation, they will reflect on their unique experiences as members of the Leakey family and explore the implications of their most recent fossil finds.

Friday–Saturday, Oct. 10–11

Tickets are required. Visit www.leakeyfoundation.org or call 312.665.7400 for details.



LIONEL EGGER

Weekend Pass: \$250

- Feature presentation by Meave and Louise Leakey
- Private reception with the Leakeys and other scientists
- Behind-the-scenes or Highlights Tour of The Field Museum (space is limited)
- Research Roundtables
- Saturday box lunch with participating scientists
- Day Pass benefits listed below.

Day Pass: general public \$40, students, educators and Leakey Foundation or TFM members \$35 (Saturday only)

- Access to more than 20 presentations and workshops by leading authorities in human origins and evolution
- Access throughout the day to The Field Museum's permanent exhibitions.

The Centennial Tribute to Louis Leakey weekend program is presented with generous support from the Zed and Gordon Getty Foundation, Solist Chicago, Warner Tower, Fluid, Inc., Chicago Public Radio and Robert Mondavi Winery.

THE LEAKEY FOUNDATION

The Big Draw

Join artists throughout The Field Museum's halls to draw, paint and sculpt works of art inspired by our exhibitions. All ages and skill levels are welcome. Highlights include the creation of a Gallery 37 bench, illustration of an archaeological dig and Field Museum scientific illustrators drawing the collections. The Field Museum, Gallery 37 and Lill Street Learning Center are collaborating on this two-day explosion of visual arts.

Friday–Saturday, Nov. 7–8, 10am–3pm

Free with Museum admission



COURTESY PEGGY MACNAMARA

Fieldtrip

Fossil Hunting

Dave Dolak,
Columbia College

Do you like to hunt fossils? Come with us to the world-famous Mazon Creek site to discover what Illinois was like more than 300 million years ago! Plan on a one-quarter mile walk to fossil locations.

Families with children ages 7–12
Saturday, Sept. 20, 8am–3pm
\$38 per person, members \$27



Family Workshops

The Two of Us

Travel the Museum's exhibition halls and enjoy stories, hands-on activities, art projects and fun facts.

Families with children ages 3–5
Tuesdays, Sept. 30–Nov. 18
10–11:30am or 1:30–3pm (Choose one time.)

\$95 per child; \$80 per member child
For each child, one adult attends at no charge.



Lectures

Hip Hop and Social Change Conference

Engage in a provocative discussion with academics, artists and community members about hip hop's social and cultural impact worldwide. The keynote presentation will feature Mos Def and Talib Kweli, two dynamic artists whose music and work engage audiences in a thoughtful, challenging dialogue about society today.

Friday–Sunday, Oct. 3–5
\$10/day, students/educators/members \$8/day

Keynote presentation only—Oct. 4, 7:30pm
\$20, students/educators \$15, members \$10
(Reduced admission with purchase of two-day conference pass.)



Native Americans and Film

Jacquelyn Kilpatrick, Southern California State University

Trace the changing depictions of Native Americans in cinema over the past century.

Saturday, Nov. 1, 1pm
\$10, students/educators \$5, members free

Clay Figurines of Kamegaoka

Dr. Fumiko Ikawa-Smith, McGill University

Discover what unusual clay figures can tell us about a Japanese society that existed 15,000 years ago.

Saturday, Nov. 8, 2pm
\$10, students/educators \$8, members free

Part of the Boone Lecture Series on East Asian Anthropology and Culture.

Below is a calendar of current and upcoming temporary exhibitions. Some dates may change. Visit our website at www.fieldmuseum.org or call 312.922.9410 as the date of your visit nears.

50 Years of Powwow in Chicago
Through January 18, 2004

Fragments From the Temple Mount of Herod the Great: Archaeology News From the Holy Land
September 5, 2003–March 14, 2004

Eviction and Homecoming: The Story of Brazil's Panará Indians
September 12, 2003–February 8, 2004

Designing a Museum Exhibition

John Dalton, TFM Exhibitions Dept.

From books to blueprints to models to construction—get a behind-the-scenes look at how designers create Field Museum exhibitions. Then work on designing your own!

Families with children ages 7–12

*Saturday, Oct. 4,
10am–noon*

\$10 per person, members \$8



KIMBERLY MAZANEK/89764 16C



JOHN WEINSTEIN/89390 50C

Extreme Insects

Phil Parillo, TFM Insects Division

From the fastest to the strongest to the smallest, go behind the scenes at the Museum to see some of the most incredible six-legged creatures on Earth.

Families with children ages 6–14

Friday, Oct. 10, 6–8 pm

\$15 per person, members \$12

Fieldtrips

Chicago Waterways

Dr. Irving Cutler, Chicago State University

Cruise Chicago's waterways for a unique perspective on the economic, ecological and historical development of our metropolitan area.

Saturday, Sept. 13, 9am–5pm

\$50, members \$43

Meet at the Wendella

Boat Dock on

Michigan Ave.



LAKE MICHIGAN FEDERATION

MCHEERY COUNTY CONSERVATION DISTRICT



The Return of the Sandhill Cranes

Alan Anderson, Chicago Audubon Society

Journey to a nature preserve in the wetlands of Indiana that is famous for the thousands of Sandhill Cranes and Canada Geese that stop to rest there each autumn. Bring a lunch, binoculars and a field guide.

Saturday, Oct. 18, 10am–8pm

\$60, TFM and Chicago Audubon Society members \$50

Polar Thaw: Global Warming in the Arctic and Antarctic

September 21–November 16, 2003

Einstein

October 17, 2003–January 19, 2004

Animal Mask Making

Heather Hug, Riverside Arts Center

Let the animals in our halls inspire you to make an exciting animal mask out of paper, cardboard, yarn, paint and feathers.

Saturday, Oct. 18

Families with children ages 6–8, 10–11:30am

Families with children ages 9–12, noon–1:30pm

\$10 per person, members \$8

Celebrate Shells!

Dr. Wendy Taylor, University of Chicago

What kind of shells washed up on the beach 300 million years ago? Examine the shells of ancient creatures and discover how they compare to shells you might find today.

Saturday, Nov. 15

Families with children ages 6–9, 10–11:30am

Families with children ages 10–14, 1–2:30pm

\$10 per person, members \$8

Volcanoes: From Magma to Lava

Dr. Phil Janney, TFM Geology Dept.

Explore the fiery and fascinating world of volcanoes, and learn about lava—the cooled chunks of magma that volcanoes spew.

Saturday, Nov. 22

Families with children ages

6–9, 10–11:30am

Families with children ages

10–14, 1–2:30pm

\$10 per person, members \$8



MEIGHAN DEPKE

Courses and Workshops

Field Ecology: Fall

Julie Vandervort

Examine how ideas about biodiversity impact efforts to conserve endangered species and habitats. This course can be applied to the **Naturalist Certificate Program**.

Wednesday, Sept. 10, 7–9pm

Saturdays, Sept. 13–27, 9am–noon

\$140, members \$116

Sketching Mammals and Birds

Marlene Hill Donnelly, TFM Geology Dept.

Draw animals with artistic beauty and lifelike detail. Develop your own personal style using pencil, pen, ink and watercolor. All skill levels are welcome.

Thursdays, Sept. 18–Oct. 16, 6–8pm

\$82, members \$68



MARLENE HILL DONNELLY

Minerals, Rocks and Volcanoes

Dr. Phil Janney, TFM Geology Dept., and Dr. Wendy Taylor, University of Chicago

Take a close-up and hands-on look at the intriguing minerals and rocks formed by volcanoes—and the diamonds they may contain!

Tuesdays, Oct. 7–28, 6–8pm

\$80, members \$68

Fossil Basics

Dave Dolak, Columbia College

Decipher the Earth's geologic history to reconstruct lost worlds! Prepare a fossil fish and explore the significance of two local fossil sites.

Wednesdays, Oct. 8–29, 6–8pm

\$70, members \$60



JOHN WEINSTIEN | BEC46

Egyptian Magic II:

Temples, Priests and the House of Life

Tom Mudloff, Egyptologist, The Oriental Institute

Examine how temples and priests kept the forces of heaven, earth and the underworld in balance in ancient Egypt.

Wednesdays, Oct. 22–Nov. 5, 6–8pm

\$55, members \$47

Lively Fall Festivals for All Ages

Celebración, Festival of Latino Culture

Film: Cuban Cinema, Past and Present

Edna M. Rodriguez-Mangual, Texas Christian University

Examine the complexities of personal identity within the Latino community, as expressed in film and mass media in Cuba.



*Saturday, Sept. 6, 2pm
\$10, students/educators \$5,
members free*

Featured Performance: Angel Melendez and Orquesta Arallue and the Latin Street Dance Company

*Saturday, Sept. 20, 1pm
Free with Museum admission*

Lecture: Social Stratification in Ancient Puerto Rico

Dr. Antonio Curet, TFM Anthropology Dept.

Discover what exciting archaeological excavations are revealing about life in ancient Puerto Rico.

*Saturday, Sept. 27, 2pm
\$12, students/educators \$10, members free*

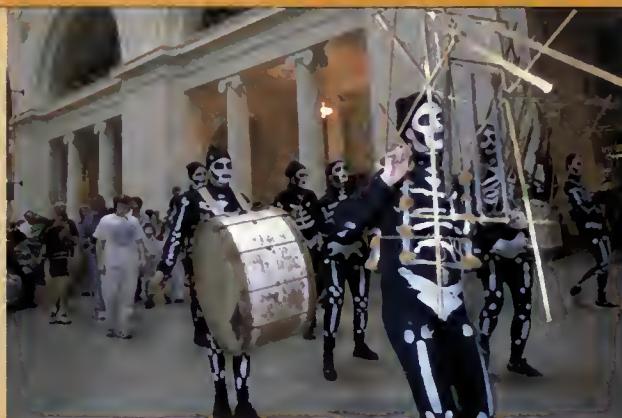
Family Workshop: Mexican Day of the Dead

Mara Cosillo-Starr, TFM Education Dept.

Celebrate the uniquely Mexican holiday that honors departed loved ones. Learn the traditions of the day and create your own decorations, including traditional flowers, banners and sugar skulls.

*Saturday, Oct. 25, 10am–noon
\$10 per person, members \$8*

Celebración is made possible through the generosity of Abbott Laboratories.



JOHN WEINSTEINGN89500.30AC

Halloween Harvest Festival

Join a full day of family fun, including a demonstration of Puerto Rican saint-carving by artist Pichillo, also known as Luis Raul Nieves, and a dazzling indoor parade led by the renowned Redmoon Theater company.

*Saturday, Oct. 18
Hands-on activities 11am–1pm, carving demonstration
12:30pm, parade 2pm
Free with Museum admission*

Canadian Haida Dance: A Celebration of Repatriation

The Haida Nation of Canada commemorates the homecoming of its ancestors' remains through a collaborative repatriation effort with The Field Museum. More than two dozen dancers will perform in full ceremonial regalia.

*Friday, Oct. 17, 10:30am–noon
Free with Museum admission*



Special exhibitions tell fascinating stories.

50 Years of Powwow in Chicago

Open through Jan. 18, 2004

Dynamic photographs explore a vibrant celebration of Native American cultures in today's urban world.

50 Years of Powwow in Chicago is presented by The Field Museum in collaboration with the American Indian Center.



COURTESY AMERICAN INDIAN CENTER

Eviction and Homecoming: The Story of Brazil's Panará Indians

Sept. 12, 2003–Feb. 8, 2004

Dramatic images document one indigenous community's triumphant struggle to reclaim its land and identity.

This exhibition was developed by Instituto Socioambiental, Brazil, in collaboration with The Field Museum.

Join a **free panel discussion** about their epic trial on Saturday, Sep. 13, 2pm.



PEDRO MARTINELLI

Fragments From the Temple Mount of Herod the Great: Archaeology News From the Holy Land

Sept. 5, 2003–March 14, 2004

Beautifully carved architectural fragments tell the story of the Temple Mount in Jerusalem 2,000 years ago.

This exhibition was organized by the Israel Antiquities Authority. Archaeology News From the Holy Land is made possible by the Pritzker Foundation.

On Sunday, Sept. 7 at 2pm, Dr. Ronny Reich of the Israel Antiquities Authority will discuss exciting discoveries from archaeological excavations in Jerusalem, including the James Ossuary, a controversial bone box that was found to have a forged inscription referring to a brother of Jesus.

Free with Museum admission.

Visitor Information



Getting Here: This fall, watch for the opening of a new parking garage directly across from The Field Museum's south entrance! Visit www.museum-campus.org for the latest information on parking, free trolleys and public transit.

Hours: 9am–5pm daily. Last admission at 4pm.

To get tickets: Einstein is a specially ticketed exhibition. Member passes can be reserved in advance by calling Ticketmaster at 312.902.1500 (service charges apply) or coming to the membership desk near the Museum's south entrance (no service charges). Non-member tickets can also be reserved in advance through Ticketmaster or in person at the Museum's admission desks. Day-of tickets are available at the Museum while supplies last.

Accessibility: Visitors using wheelchairs or strollers may be dropped off at the west entrance. Handicapped parking and wheelchairs are available on a first-come, first-served basis. Call 312.665.7400 to check on the accessibility of programs that take place outside of the Museum.

Information: 312.922.9410 or www.fieldmuseum.org



JOHN WEINSTEIN/GN89448.39C

The Elephant's Revenge



Objects such as this Chinese snuff bottle indicate a widespread demand for ivory that led to a dangerous decline in Africa's elephant populations.



At the heart of every war is the cultivation of fear, whether fear of foreigners, a lack of resources or food shortages and famine, to name a few.

Dr. Chapurukha Kusimba, a curator of anthropology, is digging through oral, historical and archaeological records to understand what caused endemic warfare among East African societies between the 17th and 19th centuries. Two plausible hypotheses are Eurasian conquest and rampant slave trading that depopulated entire African regions. Yet Dr. Kusimba also points to a less obvious cause—elephant over-hunting.

Ubiquitous in Africa's cultural history, elephants are most crucial to humans as the architects of a more habitable landscape. As they forage, elephants cut through impenetrable vegetation, opening up land for ground-dwelling mammals and the humans that rely on them. A shade-free environment also drives out the tsetse fly, which transmits infectious parasitic diseases to humans and livestock.

By the 18th century, a substantial demand for ivory—and higher quality weapons, namely guns—caused elephant populations to plummet. Areas maintained by elephants reverted to dense forests, grazing animals migrated and the dreaded tsetse fly and other disease vectors returned.

The elephant's revenge came, however, when the rains failed, causing prolonged droughts, severe food shortages and diseases, including cholera and sleeping sickness. Nearly 60 percent of the people who had survived enslavement and 90 percent of the livestock, including the majestic buffalo, were wiped out. Lions, failing to find their traditional prey, turned to humans. Few could have imagined the rippling effects that over-hunting a keystone species, the elephant, would have on the land and people of East Africa.

Dr. Kusimba will speak on this topic as part of the Year of Biodiversity and Conservation on Sunday, Oct. 19, at 2pm. Free with Museum admission.

Arctic Rocks Hold Secrets to a Hotter Past

Adam Volland, Writer

While scientists protectively barricade a waffle and journalists flood the pages with brilliant stories of global warming, research on the environmental phenomenon is relatively minor and fraught with uncertainty. Scientists agree that the Earth is warming and that human activities are largely responsible. Deforestation and the burning of fossil fuels (coal, oil and gas), for example, send massive amounts of carbon dioxide (CO₂) into the atmosphere, causing it to heat up. Yet estimates vary widely about how this will affect our planet's climate, harming not only flora and fauna, as noted by McElwain, PhD, at the Field Museum's division of paleobotany, is hoping to provide some much-needed answers.

Along with a team of geology experts, Dr. McElwain spent a month in Greenland last summer contending with treacherous terrain and inhospitable camping conditions to collect 1.5 tons of plant fossils. Between the Triassic and Jurassic periods about 200 million years ago (Mya), a CO₂-induced global warming significantly altered or killed a high percentage of the planet's plants and animals. Since plants require CO₂ to make complex sugars and starches, they serve as excellent barometers for documenting changes in CO₂ levels. Understanding more about the Triassic-Jurassic extinction may better inform the effects of today's and future global warming on our planet's biodiversity.

CO₂ Climax

On the eve of this biological disaster, Earth scarcely resembled what it is today. The continents were joined together in a massive supercontinent called Pangea. Sweltering temperatures prevented the formation of polar ice, and moist, subtropical forests flourished as far north as Greenland. In the forests, ancestral mammals scurried beneath canopies of palm-like cycads, slender ginkgos and magnificent conifers, while flying reptiles called pterosaurs stalked careless insects. The most familiar and abundant plant group on Earth today, Angiosperms (flowering plants), had not yet evolved. Beneath a young Atlantic Ocean, lava began to seep from the Earth's fiery interior, releasing tons of CO₂ and other noxious gasses into the atmosphere.

With nowhere to go, the CO₂ accumulated, quadrupling its atmospheric concentration by the early Jurassic. This increased volume of CO₂ acted

like glass, enabling the sun's heat energy to enter the atmosphere but preventing a higher proportion from escaping. Like the inside of a car on a hot day, the Earth's temperatures rose by three to four degrees Celsius (7 to 10 degrees Fahrenheit), resulting in global warming due to the "greenhouse" or "glasshouse" effect of CO₂.

Dr. McElwain hypothesized that the scorching temperatures took their toll over time. In all, 95 percent of plant species gradually disappeared, as did 80 percent of marine invertebrate life and 50 percent of vertebrates. This extinction—the third greatest in Earth history—rivalled in magnitude even the well-known Cretaceous-Tertiary extinction that killed the dinosaurs 65 Mya.

Searching for a Tipping Point

Dr. McElwain wants to know when, why and how the plant die-off occurred. By examining how fossil plant diversity

changed over the Triassic-Jurassic boundary, and how the abundances of different fossil plant groups changed relative to one another, she hopes to determine a CO₂ threshold—the precise concentration of atmospheric CO₂ that caused climate to short circuit and ecosystems to collapse, resulting in the Triassic-Jurassic extinction.

"Climate change isn't as gradual a process as we originally believed," Dr. McElwain said. "It has been likened to turning on a fluorescent light. When you switch on a light, the room does not go from complete darkness to full illumination in an instant, but flickers on and off first."

"Climate change works the same way. Records trapped in the arctic ice, for example, have revealed that climate 'flickered' or fluctuated rapidly, and often

Sphenophora spectabilis, a fossil plant from Greenland



Adam Volland/Field Museum



JENNIFER MCELWAIN

Stephen Hesselbo (foreground) and Matthew Haworth trek up an outcrop at Astartekløft.

violently, between hot and cold during the transition from a cooler to a warmer climate mode." According to Dr. McElwain, drastic changes in climate can occur over a period of only a few hundred years—a mere nanosecond on the geologic time scale.

Dr. McElwain studied fossils originally collected from Jameson Land, Greenland, in the 1920s and '30s by Tom Harris, the first person to document the area's paleo-flora. Pointing to volcanic activity associated with the breakup of Pangea, she concluded that skyrocketing CO₂ levels killed large-leaved species. They were replaced with plants that had smaller and narrower leaves, which release heat more efficiently and can stay cooler. Apparently, according to Dr. McElwain's "thermal damage hypothesis," large-leaved species couldn't stand the heat. Ultimately, this suggests that severe increases in global temperatures can have rather disastrous effects on plant communities.

Fresh fossils

While Harris' fossil collection supported Dr. McElwain's theory, it is relatively small and the methodology for assembling it unknown, limiting the fossils' full potential for ecological interpretation. Dr. McElwain needed fresh fossils, and Greenland, with its rocky exposures and fjords cut deeply into the landscape, was the choice destination. With funding from the National Geographic Society, The Field Museum and the Women's Board, she assembled a world-class team of experts that included Finn Surlyk, a sedimentologist from Denmark, Stephen Hesselbo, a geologist from

England, and Mihai Popa, a paleobotanist from Romania.

Following an onerous period of preparation, and a patient wait for the one-month window that Greenland is accessible via helicopter, Dr. McElwain's team finally arrived. After setting up camp on the permafrost, they hiked to one of the world's most fossil-laden outcrops of Triassic-Jurassic age. All it took was a quick tap of the 500-foot cliff face to split the rocks along natural points of weakness, sending 200 million-year-old "leaves" fluttering in the breeze. Dr. McElwain's team extracted fossil after fossil—including one fern frond that is more than two feet across—from outcrops that have recorded the destruction of ecosystems and the emergence of others in scrupulous detail.

Dr. McElwain and her team were meticulous in their collection techniques. They scoured 11 fossil plant beds, each one approximately three feet thick, for equal amounts of time. They collected every possible fossil remain, including bark, leaves, seedcones, scales and wood. Sampling required thoroughly identifying each sedimentary level and the precise location of each fossil. After collection, the fossils were wrapped with protective material, carried to base camp and shipped out via helicopter.

Dr. McElwain expects that it will take nearly two years and at least one more expedition to chip through the plant fossils, identify them and examine their past ecology before any definitive conclusions can be made on the CO₂ threshold at which biodiversity loss occurred. While these plants are quite different than those of today, scientists can be guided by the past to help indicate what's potentially in store in a higher CO₂ world. **ITF**

As part of the Year of Biodiversity and Conservation, Dr. McElwain will speak about her Greenland expedition on Sunday, Sept. 21, at 2pm. Free with Museum admission. You can also purchase her book, The Evolution of Plants, co-written by K.J. Willis, in the Museum store.

Mihai Popa, Stephen Hesselbo and Jennifer McElwain at Ranunkeldal.



MATTHEW HAWORTH

JENNIFER MCELWAIN

A Labyrinth of Logistics

Adam Voiland, *Writer*

"Specimen labels. Pickaxes. Ziploc bags for cuticle. Geological compass. Hydrochloric acid. Rubber gloves. Danish evacuation insurance. Sunscreen. Satellite telephone. Sewing kit. Karabiners. Waterproof matches. Polypropylene shirt. Kneepads."

This may seem like a strange combination of items, but it only hints at the 202-item gear list that a Field Museum research team assembled for its expedition to the arctic.



Packing fossil plant specimens at Astartekloft.

Jameson Land Basin, Greenland, the area where paleobotanist Jennifer McElwain, PhD, and her team collected plant fossils that may contain clues to global warming, is no place for casual camping. Barren, isolated and perilous, the basin is swarming with mosquitoes and available for fieldwork only one month of the year when it's not raining or snowing.

What does it take to prepare for fieldwork in such an extreme environment? According to Rebekah Hines, a Field Museum geologist who was instrumental in the planning process, "Extensive planning and tons of Internet research!"

Hines worked for eight months to overcome the labyrinth of logistics associated with Dr. McElwain's trip. She researched safety, food, transportation, cold-weather camping, fossil preservation and field electronic equipment, to name a few issues. The preparation included securing governmental permission to remove and transport the 1.5 tons of fossils collected via helicopter and boat. The Danish Polar Center was especially helpful with transportation,

government regulations and arctic safety.

Polar bears, which have been known to stalk and occasionally kill people, were one of the team's more unusual concerns. Since they inhabit Greenland, Hines researched bear deterrents, including pepper spray and small-scale explosives similar to flare guns. It was important that the team members understand both how to prevent encounters with the massive animals, and how to protect themselves should they cross paths with one. Luckily the expedition passed without a bear sighting.

Fieldwork wasn't easy. A typical day began in the early morning, ended in the late evening—it's light 24 hours a day during Greenland's summers—and featured lengthy hikes, long excavation periods and lugging heavy loads of fossils. The result: the team got hungry—very hungry.

But its isolated camp location and Greenland's stringent agricultural import regulations made planning meals complex. All food items had to be shipped to Greenland three months before the team arrived and had to last the additional month the team was conducting fieldwork. In other words, only nonperishable items were feasible: Sausage and

hard cheese became the only "fresh" food the team ate. In addition, no canned foods were allowed, and only small quantities of alcohol and chocolate were permitted per person because of high import duties. It was also crucial that all food brought in weigh as little as possible.

Nevertheless, Hines devised a nutritious meal plan for the researchers. A typical day's plan included three full meals and three breaks, with foods ranging from oatmeal, soup and mashed potatoes for breakfast and lunch to elaborate Mexican, Chinese and Italian meals for supper. A 20-pound wheel of Wisconsin parmesan was popular; the powdered eggs were not. "We'll have to avoid those next time, but overall I think they ate just as well, or even better, than I normally do!" Hines said. **ITF**

Polar bears, which have been known to stalk and occasionally kill people, were one of the team's more unusual concerns.

MIHAI POPA

Anti-Poaching Activist Honored for Conservation Efforts

At one time, elephants spread from Africa's Cape of Good Hope to Cairo and probably numbered in the tens of millions. Today, fewer than 610,000 remain. This precipitous decline is largely due to human encroachment upon their habitats and well-armed ivory poachers who decimated populations in the 1970s and '80s.

Lorivi Ole Moirana, chief warden of Tanzania's national park system, will receive The Field Museum's Parker/Gentry Award in October for his efforts to control poaching and preserve Tanzania's habitats and ecosystems. While head warden of Ruaha National Park from the mid-1980s to 1990s, Moirana was responsible for shutting down some of the most extensive elephant poaching in the country. His current duties include managing the park system's anti-poaching unit.

Moirana has also been active in expanding Tanzania's national parks as a means to protect their remarkable plant and animal life. As chief warden of Kilimanjaro National Park from 1997 to 2001, Moirana convinced the Tanzanian government to expand the park boundary below the tree line to incorporate its distinct forest habitat, which had been subject to illegal logging. Through his passionate efforts, the park is considered a showpiece of wilderness management and conservation.

The Parker/Gentry Award honors an individual or group who has made a significant impact on preserving the world's rich natural heritage. It is named for Theodore A. Parker III and Alwyn H. Gentry, ardent conservationists who worked closely with The Field Museum on several joint efforts. They died in 1993 while surveying hill forests in western Ecuador. Visit www.fieldmuseum.org/parkergentry for more information.



TOM GNOSKE AND DAVE WILLARD

Double Discount Shopping Days

Whether you're buying for family or friends, The Field Museum stores are your one-stop-shop for distinctive holiday gifts.



On Dec. 8, 13 and 17, members receive 20 percent off all Museum merchandise—an additional 10 percent over your regular discount. There are three stores to explore, as well as our new online store at <http://store.fieldmuseum.org>. Each one offers handcrafted gifts, colorful textiles, home accessories, children's items and books that are perfect for creating a meaningful and educational holiday season.

For the budding paleontologist, build a "dino pack" that could include a book on Sue, an excavation kit and a t-shirt with *Brachiosaurus* dancing along Chicago's skyline. Then assemble everything in a plush dinosaur backpack.

Your traveling friends might enjoy home accessories from around the world. Pick one thing for each room in the house—an elegant Japanese teacup set for the kitchen, a regal Egyptian statue for the living room and a hand-embroidered and beaded Tibetan pillow for the bedroom, for example.

Or fill up your favorite bookworm's shelves with a range of natural and cultural history titles, including books written by Field Museum staff. William Burger, curator emeritus in botany, recently wrote *Perfect Planet: Clever Species*, a sweeping tour of cosmic and evolutionary history that builds a compelling case for humanity's unique place in the universe. Lori Grove, an illustrator in geology, just released *Chicago's Maxwell Street*, a well-researched and heartfelt tribute to this vibrant neighborhood and market.

Proceeds from your store purchases support The Field Museum's education and research efforts. Remember to bring your membership card on these double discount days, or have your membership number handy if you visit the online store.

The First Specimens: 110 Years of Collections and Research (Part 2)

The Field Museum's collections are more than a "dead animal zoo." They are a thoroughly preserved wellspring of information about our planet's natural and human worlds.

Most of the Museum's endeavors stem from our collection of 22 million artifacts and specimens. They are the inspiration behind many exhibitions and programs. We can use them to train researchers and conservationists around the world, or as evidence that a particular natural area needs protection. They can show us how human behavior or environmental changes affected whole populations over time, or fill in gaps of knowledge about how one species evolved. Just as libraries are the caretakers of humanity's written

word, it is our duty to guard our collections for both the material and potential knowledge they hold on nature and culture.

Continuing from the last issue of *In the Field*, below are some of the Museum's first specimens to honor 110 years of collecting and research. "First" can mean many things—the very first artifact acquired for a particular research area, or the first specimen ever collected of its kind, for example. We could fill five magazines with different "firsts." Here are some of our favorites:



1



2



JOHN WEINSTEIN 1 GEO06370 D2D 2 Z94369 J1D 3 GEO06371 01

1) A 300 million-year-old fossil fern leaf, *Neuropteris carri* Lesq., from Grundy County, Ill., which was once covered with dense swamps and vegetation. Among the first in the paleobotany collection. 2) This unknown species was the only butterfly among the Museum's first accessioned insects around 1893. 3) The "Tully monster," *Tullimonstrum gregarium*, is Illinois' state fossil. Named by a Field Museum curator for the man who first found it, these bizarre marine animals exist nowhere else on Earth and appear to have no relatives, extinct or living. From the fossil invertebrate collection.



4



5



4 BILL STANLEY 5 RON TESTA/B832196 6 ELM F GGS/CSGE0393

4) This mouse shrew, *Myosorex zinki*, was the first specimen of its kind in the mammal collection. It's the only mammal endemic to Mt. Kilimanjaro. Before a recent Field Museum expedition, only three specimens existed in the world. 5) This model, based on a *Medinilla magnifica* flower from the Philippines, represents the first attempt by a natural history museum to display plants with exacting fidelity. Remarkably intricate and beautiful, the models became famous when *Plants of the World* opened in 1983. 6) In 1899, charged with finding a brontosaurus to draw visitors to the Museum, Elmer Riggs found an alleged femur and other fragments in Colorado. But the leg bone turned out to be an arm bone that was too big for a brontosaurus. Riggs had discovered a new dinosaur and named it *Brachiosaurus altithorax*. Pictured is William Menke, an expedition assistant. From the fossil vertebrate collection.

Einstein Private Viewings

See the world through the eyes of a genius in *Einstein*. The members'-only viewings are Oct. 15 and 16 from 9am to 10pm and Oct. 19, 22 and 23 from 5 to 10pm. Invitations will be mailed, and reservations are required. Call 312.665.7700 for information.


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Annual Fund Donor Appreciation Night

As a special thanks to all our 2003 annual fund supporters, we invite you to the 2nd annual donor appreciation night on Wednesday, Nov. 12, which will include the opportunity to view *Einstein*. The event was a great success last year, and we look forward to welcoming both our new and longstanding supporters this year. Invitations forthcoming. For information call 312.665.7777 or email annualfund@fmnh.org.



Children's Holiday Celebration

Join us on Thursday, Dec. 4 from 4 to 6:30pm for the annual Children's Holiday Celebration hosted by the Women's Board. Explore the diverse cultures of Chicago and the world through crafts, stories and entertainment at this festive event.

Sing along to holiday favorites performed by the Stu Hirsch Orchestra, marvel at the gravity-defying Jesse White Tumblers, enjoy the grace of the Ballet Chicago Studio Company, and be enchanted by the Chicago Children's Choir. Delicious food, special appearances by favorite characters such as Ronald McDonald and a visit with Santa Claus will create a memorable evening for children of all ages.

Reservations are limited, and tickets will not be sold at the door. For tickets or information call 312.665.7145.

Local Amphibian Steals the Plate

The unofficial results are in. Should The Field Museum ever join the minor league, the Mudpuppy (*Necturus maculosus maculosus*) would be our mascot!

If you stopped by the amphibians and reptiles division during Members' Nights, you may have participated in an unscientific, albeit popular, poll. Three rattlesnakes that have professional baseball teams named after them (i.e. the Arizona Diamondbacks) were displayed next to three local amphibian and reptile species. Members voted on which one they thought would make a good Field Museum mascot. Out of 560 votes, the Mudpuppy won, taking 50 percent of the votes over the Illinois Chorus Frog (28 percent) and the Eastern Massasauga Rattlesnake (22 percent).

Thanks to all members who stopped by for a bit of herpetological humor!


ILLUSTRATION: DAVID OUEDNAU



GREEN HOUSE NETWORK/TRACY ADAMS

The Field Museum's Year of Biodiversity and Conservation (YBC) explores the most pressing environmental topics of our time through special lectures, exhibitions, opportunities to interact with Field Museum scientists and suggestions on how you can become personally engaged in conservation. Look in this issue's calendar section for programs on climate change in September, African biodiversity in October and genetic biodiversity in November.

To kick off the YBC, participate in Chicago's first **Race to Stop Global Warming on Sunday, Sept. 21**, part of a national race series sponsored by the Green House Network. Choose from a 15K, 8K or 5K run/fitness walk, plus three children's events. Runners will receive two-for-one admission to the Field that day and enjoy additional YBC educational activities and performances. Register through 866.STOP.CO2, www.racetostopglobalwarming.org or in person at 7:30am in Arvey Field (adjacent to the Museum).

Conservation makes a world of difference.



Chap Kusimba, Ph.D.

Curator of Anthropology
at the Field Museum in
Kenya, Africa

Dr. Kusimba studies the historical relationships of east African people with each other and wildlife. His research focuses on the development of complex societies along the Kenyan coast during pre-colonial times, from 700 to 1500 A.D.

Hear Dr. Kusimba speak on
Sunday, October 19 at 2p.m.